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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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THE MICHIGAN COAL FIELD.

The Michigan or Northern Interior coal field is the only coal field found in the drainage basin of the St. Lawrence river. It lies, as Dr. Alfred C. Lane tells us in Part III. of the Twenty-second Annual Report of the United States Geological Survey now in the press, between Lake Michigan and Lake Huron in the center of the lower peninsula of Michigan, and extends from Jackson county on the south to Roscommon county on the north, and from Tuscola county on the east to Kent county on the west, embracing an area of about 7,500 square miles. The coal basin is a low, flat country as compared with the surrounding rim of higher land, which rises from 400 to 1,000 feet above lake level. In the order of time the development of this field began with the mines around Jackson, dating back to 1835; next the Cedar Grand field, an area of 20 miles each way from Lansing, in Eaton and Ingham counties, was developed. The Owosso district, including the mines near Owosso and Corunna, in Shiawassee county, and near Flushing and Elk, in Genesee county, was opened somewhat later, and last, the Saginaw district, including Saginaw county and the Verne mine and the Bay field, including Arenac Bay and Tuscola counties, and Sebawaing field of Huron county. Mr. Lane believes that new areas of coal will be found, but he gives the warning that reports of coal near Detroit, New Baltimore, Alperia and west toward Charlevoix, are usually due to the black shales, and that this region may safely be assumed to be without commercial coal. It was formerly erroneously supposed that there was but one workable coal bed in Michigan. There are certainly seven, of which three are probably much more important than the others, but the irregularities of the basin prevent exact correlations. The coal does not, as a rule, lie deep. It is all bituminous leaning to the gas-coal type. The Verne coals can be coked, but are high in sulphur. As a steam fuel the coal ranks with the Hocking Valley and below the Pocahontas coals. It is interesting to note that the greatest impetus to the Saginaw coal mining dates from 1895, and was due to the threatened decadence of salt manufacture, dependent in turn on the decadent lumber industry, which has heretofore furnished the fuel, and to the necessity of finding some other cheap fuel. The pillar and chamber system of mining is practically the only one used. The workmen are from various districts; more than half of them are American born, and those not native have been on an average sixteen years in the United States. The workmen of the mines around Bay City and Saginaw scatter through the city and make no distinct class by themselves. The miners and operators are not admitted into the Ohio convention, but meet in Saginaw to arrange their own scale. Mine-cutting machines are more extensively used in the Bay City field. For tramming, mules are used; not steam nor electricity as yet. The land, as a rule, is leased at about 8 cents per ton

royalty, and has not generally been bought outright for mining, as it is valuable for agricultural purposes.

The production of coal in 1880 was 129,053 short tons; in 1890, it was 74,977 tons, valued at a little over \$149,000; in 1900 it was 849,475 tons, valued at over \$1,259,000. Saginaw and Bay counties produced more than nine-tenths of the coal in 1900. The indications all point to more mines and increased output of present mines in the immediate future. The coal markets are the most important, but the coal is spreading into the wheat country of Wisconsin, Minnesota and the Dakotas, because of the very low rates given by railroads, which would otherwise haul empty cars westward. The Pere Marquette, the Michigan Central and the Grand Trunk are the chief coal-carrying roads, while Saginaw Bay and Saginaw river bring lake transportation to the heart of the coal basin.

SUBSIDY BILL BEFORE THE HOUSE.

The ship subsidy bill recently passed by the Senate was today taken up by the House Committee on Merchant and Marine and Fisheries, Dennis Clyde, of the Clyde line of steamers, being heard in support of the measure. Mr. Clyde said the opponents of the bill should be pinned down to two points, namely; first, is there a difference in cost in building and operating American as against foreign ships, and, second, if there is such difference what better way is there to overcome it? Held down to these points, Mr. Clyde said the "flights of fancy over the trust magnates and the wicked shipowners would disappear." He said that the cost of building and operating the American ship was about 30 per cent. above the foreign cost.

He drew attention to the movement by capitalists under the leadership of Mr. Morgan, to buy up certain trans-Atlantic lines, the Leyland and the Atlantic transports. This, Mr. Clyde declared, was the opening of a new era. It meant that those who controlled the great railroads of the country see the desirability of linking this transportation with that on the sea, thus increasing the radius of our export circle. Although he had no interest whatever in the movement, Mr. Clyde pointed out that it afforded an opportunity to have large amounts invested in American yards and American ships. The men in this movement, he said, would get their ships where they could do so to the best advantage. They would require many ships, and if this country did not encourage the investment, then it would go to foreign yards.

Erastus Brainard, representing the Seattle Chamber of Commerce, set forth the interest of the Pacific coast shipping people in the bill. A practical object lesson had been given at Seattle, he said, where the subsidized Japanese line received \$474,000 for freights out of Seattle in one year. This more than offset the \$325,000 subsidy Japan gave the line. Further hearings are arranged to be held later in the session.

A LARGE BRIDGE.

The bridge now being built between Boston and Cambridge will be the finest in the United States, and will compare favorably with the famous bridges of the Old World. In design it is unique and is a combination of engineering and architectural skill. Its length is 1,766 feet, exclusive of approaches, and includes eleven spans of from 101½ to 188½ feet in length. The height above low water is to be 48½ feet, and the center span will furnish twenty-six feet of head room at high water for tugs and vessels without masts. One of the most striking features is the great size of the two central piers. The foundations of these are each 200 feet long by 67 feet wide, and the total height from the bottom of the piles to the surface of the roadway is 100 feet. These piers will have ornamental stone towers at each end, and smaller towers will be placed at the ends of each abutment. The striking characteristics are its massive proportions and the harmony of curvature.

REAR ADMIRAL PHILIP HICHEORN, U. S. N., retired, has a very interesting story on shipbuilding in the last number of the Youth's Companion. There is no one we know who is more competent to speak of shipbuilding of years ago and up-to-date than this well-informed and eminent naval architect.

AMERICAN SOCIETY OF NAVAL ENGINEERS.

The current number of the quarterly Journal of the American Society of Naval Engineers contains an unusually good selection of articles on marine engineering, both practical and theoretical. Lieut. Emil Theis, U. S. N., contributes a paper entitled "Notes on Details of Construction and Arrangement of Marine Machinery," a comprehensive description and criticism of details of the new battleships Alabama and Kearsarge. A translation is given by A. H. Raynal, of a paper by Chief Naval Constructor Kohn von Jaski, on the "Results of Investigations on Recent Engines of the German Navy," as originally published in Schiffbau. The paper is illustrated with diagrams and tables. Mr. A. M. P. Maschmeyer, Associate of the Society, contributes a paper on the "Standard Steam-Cutter Machinery for the U. S. Navy," with full design and very extended tables of dimensions of every part. The subject of British trials of torpedo boat destroyers is treated at some length, with much valuable matter in tabular form, and following it is a lengthy paper on the contract trial of the torpedo boat destroyer Decatur, U. S. N., by Commander H. Webster, U. S. N. Photos of hull, machinery and screws are given, with full details of dimensions of machinery, etc., and of the actual trials. A second article by Kohn von Jaski deals exhaustively with a very important subject, "The Water-Tube Boiler Question in the German Navy." Mr. Harvey D. Williams has a paper on "The Balance of a Four-Cylinder, Triple-Expansion Marine Engine," an exhaustive theoretical study of the subject. "The Correct Treatment of Steel" is treated at some length in a paper read before the Iron and Steel Section of the International Engineering Congress at Glasgow last year, by Mr. C. H. Ridsdale. The report of Naval Constructor D. W. Taylor, U. S. N., and Lieut. C. E. Rommel, U. S. N., on the progressive trials of the U. S. battleships Alabama, Massachusetts and Kearsarge, is given in full, with tables of speed and diagrams. An article on warship building in the British Navy for 1901 is reprinted from Engineering. Among the shorter articles is one by Commander Richard Inch, U. S. N., on the German cruiser Vineta, one by Lieut. T. W. Kinkaid, U. S. N., on a machinist apprentice system for the U. S. Navy, one on marine shafting forgings by Lieut. Commander George S. Willets, U. S. N. The "Notes" cover a wide range of engineering subjects treated briefly. The Journal is always interesting, and it has improved in size as well as in quality of matter. But this number is especially rich in advanced technical information on many of the important engineering questions of the day.

MORE CANADIAN CANALS.

The name of McLeod Stewart, of Ottawa, who has been advocating the Ottawa and Georgian Bay Canal scheme for years, appears as solicitor for the applicants for a charter in another extensive navigation scheme. They propose to construct a navigable waterway, (1) from Lake Superior, at or near Thunder Bay, across the height of land to Rainy Lake, and by way of Rainy river to the Lake of the Woods; (2) from Lake of the Woods along Rousseau river, or otherwise, to Red river; along Red river, Assiniboine river, Lake Manitoba and Lake Winnipegosis to Cedar lake on the Saskatchewan; or from Lake of the Woods by Winnipeg river, Lake Winnipeg and the Saskatchewan to Cedar lake; (3) from Cedar lake along the South Saskatchewan and Bow river to Calgary, and along the North Saskatchewan to Edmonton, or to such points as navigation to the required depth may be found practicable. They also ask power to acquire the existing locks at Fort Frances, and any other improvements with extensive powers in other directions. The depth of the navigation they propose to establish is 6 feet. The first part of the scheme covers the old Dawson route to Fort Garry. The charter would cover practically the whole of British North America.

The following engineers have been appointed to the boats of the Thousand Island and River St. Lawrence Steamboat Co.: New York, S. F. Ridgeway; America, Jas. Gillie, chief, Wm. Hartley, assistant; St. Lawrence, John Dickson, chief, Barney Farrell, assistant; Islander, not filled; New Island Wanderer, J. W. Estes; Ramona, O. S. Woodhull; Pierrepont, Wm. Kelly.



DETROIT.

Special Correspondence to The Marine Record:

Capt. George H. Brown has been appointed master of the Pittsburg Steamship Co.'s supply steamer, Superior, succeeding Capt. John H. Sinclair, who resigned. The Superior is now undergoing repairs at Detroit. Capt. Bowen was previously master on the barge Russell, of the same fleet.

Capt. Lewis Ludington, of Alpena, master and owner of the steamer Alaska, is recovering from a serious attack of pneumonia at Detroit. The Alaska made two trips from Alpena to Lake Erie ports before April 1 and the present illness of Capt. Ludington is attributed to his exposure on these trips.

The following meteorological observations are furnished by the office of the United States Weather Bureau, Detroit, for the week ending April 15: Prevailing wind directions for the week, northwest; highest velocity, 38 miles from the northeast on the 8th; mean temperature for the week, 45°; highest temperature, 66° on the 10th; lowest, 28° on the 8th.

The new steamer A. E. Stewart, now being built at West Bay City for Capt. A. E. Stewart, C. F. Bielman, and others, will be towed to Detroit for her boilers and machinery after she is launched. The boilers and machinery are being built by the Detroit Ship Building Co. The new boat is due to be finished and ready to go into commission July 15. She will be sailed by Capt. Fred Stewart and Robert R. Lacey will be chief engineer. Both Capt. Fred Stewart and Engineer Lacey were in the steamer C. F. Bielman before she was sold this spring.

Capt. Harris W. Baker says that the fight for the wrecking business in the Detroit river is going to be a three-cornered affair this summer. He is going to operate the tugs Champion and Snook and has a complete wrecking outfit, including seven pumps, jacks, etc., and says he will be in shape to handle any job which may come along. This will place the fight for the wrecking business between the Great Lakes Towing and Wrecking Co., with the wreckers Saginaw and Wales, a tug, and a 1,500-ton lighter, Capt. Baker with his outfit, both stationed at Detroit, and Capt. Frank B. Hackett, with the tugs Home Rule and Florence at Amherstburg, with an 806-ton lighter as well as a tug trust boat at the Lime Kilns.

In the death of Capt. Wm. H. Rolls, which occurred at his home in Romeo, Mich., last week, one of the best known and most thoroughly liked of the lake masters is removed. Capt. Rolls was forced to retire from active service and the command of the steamer Admiral in the fall of 1900 and his ailment, an affection of the stomach, grew continually worse until his death. Capt. Rolls was born in Portland, Me., in 1836, and began at the age of twelve his career as a navigator of the Great Lakes. His first position was that of cabin boy on the passenger steamer Arrow, plying between Toledo and Detroit. At nineteen he was master of a sailing vessel. Capt. Rolls served with credit in the Civil War, and at its close again became engaged in the vessel business. He was master of the tug Vulcan when that boat burned in Lake Erie twenty years ago. Previous to this he had sailed for nearly fifty years without a serious accident. He was later in command of the tug Farrent and the steamers Manistique, Gettysburg, Volunteer and Admiral.

The steamer Greyhound, once known as the "White Flyer of the Lakes," has undergone the process of dismantling and is now stripped of her machinery, which will go into the new Greyhound building for the White Star Line at the yards of the Detroit Ship Building Co. The old Greyhound was built at Manitowoc 33 years ago, but was purchased shortly after by Capt. Eber B. Ward, who brought her to the Detroit river and run her for a couple of years between Detroit and Houghton, Mich. She was then known as the Northwest. Later Capt. Ward sold her to the D. & C. line and the steamer was equipped anew with engines taken from the sidewheel steamer City of Detroit, which had been wrecked off Grand Haven. A few years later she was sold again and put on the Detroit-Port Huron route and her name changed to the Greyhound. Two years ago the old Detroit's machinery went on a rampage and nearly wrecked the Greyhound. It cost the White Star line owners \$40,000 for new engines and other machinery at that time. The old hull of the Greyhound has been carrying this new outfit since. The hull of the dismantled steamer is in fair condition, notwithstanding her thirty-three years of service, and it is likely she will be sold and used again as a lumber barge.

BUFFALO.

Special Correspondence to The Marine Record:

M. M. Drake, manager of the Lackawanna Green Bay Line, is now ready to open the line for the season.

Manager Lautenslager, of the Independent Towing Co., states that his office will be open all night for the balance of the season.

The barge Ben Harrison has been purchased by Mr. J. L. Crosthwaite. R. C. Smith, Port Huron, master. Capt. Bert Ray, also of Port Huron, as master of the Buckeye State.

The tug office of the Great Lakes Towing Co. is opened nights for the season. Capt. Thomas Mallon, one of the best tug men in Buffalo, has been selected as night manager. Wm. Flaherty is appointed night watchman at the breakwater.

The steamer Thomas Cranage, owned by Capt. Edward Smith, of Buffalo, was the first boat to reach Buffalo from the upper lakes. She came in at 6 o'clock last Wednesday night. The Oceanic came in later from Erie, with a load of grain consigned to the Frontier Elevator.

Fuel has been more than scarce here this week, and vessels have left with only enough to carry them to the rivers. The strike at the Rochester and Pittsburg mines keeps the supply back, and orders have been sent to Ohio for soft coal, a very unusual thing to do.

The following meteorological observations are furnished by the office of the United States Weather Bureau, Buffalo, for the week ending April 16: Prevailing wind directions for the week, west; highest velocity, 38 miles from the southwest on the 12th; mean temperature for the week, 40°; highest temperature, 55° on the 16th; lowest, 32° on the 15th.

Deputy Collector Wm. H. Bradish received permission to open the night clearance office at the foot of Main street on April 15th. Arrangements had been made to open the office on the above date, but approval was needed from the Washington authorities. Now that it has been obtained, there will be no delay. Capt. James Shanahan will be in charge, as last season.

The tug Acme, of the fleet of the Great Lakes Towing Co., which was sunk five miles from this port on Tuesday, while towing the Wilkesbarre through the ice, is considered a menace to navigation. A buoy and flag has been placed over the sunken tug, which lies in five fathoms of water and directly in the path of vessels entering Buffalo. An effort will be made to raise the tug as soon as the ice is out of the way. Meantime a tug will be placed on duty at night to warn vessels of the obstruction.

The two Port Colborne lock gates for the Welland canal are completed, and preparations are made for launching them into lock. All will be completed by the 28th of this month, which date is fixed for the opening of the canal. The canal will remain closed on Sundays between the hours of 6 a. m. and 9 p. m. as usual. There will be no elevators at Port Colborne, as reported probable some time ago. The floating elevators which the Wolvin syndicate have purchased will be used on the St. Lawrence canals by that company.

Work of removing the obstruction to navigation presented by the old hull of the Gov. Cushman, which blew up thirty years ago in Buffalo harbor, at the foot of Main street, and was later sunk close to what is now the main channel leading to the Philadelphia & Reading coal trestle, will probably be commenced this week, by William Hingston. Dredges and scows are being fitted out for the purpose. Maj. Symons' prompt action in this matter has been warmly complimented by marine men, who have found the old wreck a dangerous menace to shipping. The work of removal was secured by the Hingstons, on a bid of \$3,500.

Frank and Louis Hartman, who were recently appointed masters of the Great Lakes Towing Co.'s local tugs at Tonawanda, and Charles Parnell severed connections with the trust last week, and became masters of the Delta and Pallister, tugs of the Independent line, to be stationed at Tonawanda. Frank and Louis Hartman and their father sold to the Great Lakes Towing Co. the four tugs that the tug corporation has been operating for the past three years. Louis Hartman stated that the Independent line is negotiating for one of the largest and most powerful tugs on the lakes to do towing at the Tonawandas and in Buffalo. Negotiations are also pending for the purchase of several more tugs.

Widows and orphans of life-savers are to be beneficiaries of a congressional bill recently introduced. The bill is being pushed by Representative Ryan, of Buffalo, a member of the committee on interstate and foreign commerce, to which the bill has been referred. April 22 the committee will listen to argument for the bill's passage, and representatives of the Lake Carriers, Marine Firemen, Ship Masters and Masters and Pilots' Association will go before the committee to urge a favorable report on the measure. Capt. J. J. H. Brown, of Buffalo, who has been active for the adoption of the measure, will lead the movement at Washington. Every representative from New York state has been personally appealed to in aid of the bill, and it is believed prospects for its passage are bright.

Announcement has just been made to connecting lines of the season passenger schedules of the Northern Steamship Co., for the big boats North Land and North West, between Chicago and Buffalo. The date of the first sailing from Chicago is June 18, and the last sailing date is not yet decided on. The boats will leave Chicago regularly at 5:30 p. m. Wednesdays and Saturdays during the season, and arrive on the return trips at 1:45 p. m. Tuesdays and Fridays. Stops will be made at the same points as last year, which includes Milwaukee, Harbor Springs, Mackinac Island, Detroit and Cleveland, in addition to the terminals.

CHICAGO.

Special Correspondence to The Marine Record:

Lake rates on grain declined March 18, when room for 175,000 bushels was taken at 1¾ cents. Up to that time the nominal rate had been 2½ cents.

A drop from 1½ cents on corn to 1¼ cents is the present season record, and with the present rush of tonnage the line boats may be taking stiffening at the 1 cent rate.

Work has been started on \$200,000 worth of dredging at South Chicago. The mouth of the Calumet river and the harbor of the Illinois Steel Co. are to be dredged to a uniform depth of twenty-one feet. Estimates place the amount of earth to be removed at 1,000,000 cubic yards.

Official numbers has been assigned to the W. W. Brown, 3,582 gross and 2,778 net tons; also to the A. G. Brower, 3,582 gross and 2,778 net tons. Both steamers built by the Chicago Ship Building Co. to the order of the United States Transportation Co., Capt. W. W. Brown, Cleveland, manager.

The following meteorological observations are furnished by the office of the United States Weather Bureau, Chicago, for the week ending April 16: Prevailing wind directions for the week, northeast; highest velocity, 48 miles from the west on the 11th; mean temperature for the week, 44°; highest temperature, 68° on the 10th; lowest, 34° on the 14th.

April 3 was the banner day of the season at Chicago, for grain charters. There were 200,000 bushels of wheat and 190,000 bushels of corn engaged to load at Chicago, and a cargo of 240,000 bushels was taken to load at Manitowoc. With the exception of one cargo of corn, all the grain was for Buffalo. Rates were 1¾ cents for corn and 1½ cents for wheat. There was more grain than room offering at these figures.

The new shoal, one and three-quarter miles off the harbor at South Chicago will be at once marked by two spar buoys pending the return of the light-house steamer Dahlia from her trip around Lake Michigan. The buoys will be towed into position at the expense of the steel trust. They were loaned by Light-House Inspector Simonds on application of Capt. D. Sullivan, representing the trust fleet. On the return of the Dahlia steps will be taken to permanently mark the shoal, either by gas buoys or range lights on the piers.

The centrifugal pumps employed at the Ship Owners' dry dock on the north branch are the largest of any on the Great Lakes, and are capable of emptying the big dock of its 6,000,000 gallons of water in 105 minutes. The pumps throw two solid streams 25 inches in diameter. The two timbers used in supporting the mechanism which lifts heavy machinery into and out of the holds of vessels are the largest single timbers known. They are each 86 feet in length and 24 inches square. They are of Oregon fir, and were specially selected for the purpose.

Satisfactory progress at Washington toward blocking the passage of the government dredge proposition through the Senate is being reported back to the various dredging companies by the committee now at work there. Ex-Mayor John P. Hopkins and Mr. Connell, of Fitz Simons & Connell, Chicago, and Messrs. H. H. Grace, Duluth; J. A. Smith, Cleveland, and Williams, of Buffalo, are the most active workers against the measure. Senator Mason, of Illinois, has been enlisted on the dredgers' side and declares his intention of defeating the government's proposition to enter the dredgers' field of business operations.

While being towed down the south branch of the river on Tuesday the wheel of the steamer George N. Orr was broken off by contact with the submerged scow at Canal street. The scow formed a part of the pontoon bridge used by foot passengers while the bascule structure was being erected at that point, and is now sunk. The steamer Wallula tried to come down the river over the Washington street tunnel, drawing sixteen feet ten inches of water, but stuck fast. She was pulled back above the obstruction by tugs and will wait for the water to rise. The swift current in the river swung the steamer John Spry around at the Ft. Wayne railroad bridge and held her there for half an hour, when tugs succeeded in getting her free.

Representatives of the Longshoremen's Union and of the Lumber Carriers' Association of the Great Lakes, reached an agreement on Monday for the unloading of lumber at Chicago during the approaching season, and peaceful relations between the vessel owners and the 800 longshoremen engaged here are assured. The workmen will be paid from 25 to 43 cents per thousand for unloading vessels, according to the nature of the cargo, the scale

being practically the same as that in effect last year. The meeting lasted three hours, at the end of which time the scale was signed by both sides. Daniel J. Keefe, of Detroit, president of the International Longshoremen's Association, William Bain, president of the Chicago branch of the union, and Committeemen E. J. Ledden, R. S. Summers, John N. Kern, Thomas Hertford and C. W. Voettker, represented the union. The Carriers' Association was represented by Edward Hines, J. A. Calbick, V. Mashek and Charles Rettenhouse.

Formal complaint will be lodged with the War Department against the center abutment of the old railroad bridge near Taylor street as an unreasonable obstruction to navigation. The War Department will be asked to order its removal. This decision was reached yesterday by the vesselmen's committee after its members had endeavored for two days to secure a conference with Gen. Ernst, United States Engineer here, without success. The complaint will ask that summary action be taken against the drainage board and the railway companies to remove the old concrete abutment that now forms a dangerous spot in the river. The first accident to be charged up against the obstruction occurred to-day when the schooner Resumption was being towed through the Taylor street draw. In avoiding a collision with the old center pier, the rigging of the vessel caught in the bascule bridge, which was open to allow her passage, and the main and mizzen topmasts were carried away. Either the drainage trustees or the railroad companies will probably be presented with the repair bill.

Trouble appears to be brewing for vessel owners engaged in the lumber trade from the head of the lakes this season. The longshoremen are threatening to demand 60 cents an hour for handling lumber. The grievances claimed by the men are that prices of the necessities of life have all advanced and the price of lumber is higher, still they have been given no raise to conform to these conditions. It is learned that the men are doing very little talking, but intend to assert their demands forcibly at a meeting scheduled for final determination of the matter to be held at Duluth April 26. The action taken is eagerly awaited by owners of lumber tonnage and mill men as well. The latter are much interested, as most of them depend upon keeping their product moving by boat to keep dock room clear for the output of the mill. Interruption of the water shipments for any length of time would mean that some of the mills would have to shut down on account of the lack of dock space. Some of the mills expect to cut as high as 50,000,000 feet of lumber this season, and to attain such an enormous output the docks must be kept available.

Accompanying a half tone engraving the Black Diamond, Chicago, has the following to say of one of the RECORD's old friends and every word of which can be fully endorsed: The accompanying picture is an excellent likeness of O. S. Richardson, head of the well known coal firm of O. S. Richardson & Co., 215 Dearborn street, Chicago, who are agents for, and handle and ship W. L. Scott & Co.'s anthracite coal, both lake and rail. Mr. Richardson is one of the pioneers of the coal trade in Chicago, coming here from Cleveland in the fall of 1864, immediately after the Civil War, in which he was a participant, having been in the Ohio cavalry. He was born in Cleveland in 1844 and lived there until he joined his regiment in 1861. Mr. Richardson has two sons and three daughters, one of his sons, Harry, being connected with his father in the coal business. Mr. Richardson has interests in the bituminous coal fields in Indiana, with a good demand for the product of his mine. He is an affable and easily approachable man, thoroughly businesslike, suave, and an agreeable and pleasant companion, well liked by his confreres in the coal trade, and of strong personality.

CLEVELAND.

Special Correspondence to The Marine Record.

Word has been received from Pittsburg to the effect that Osborne, Seager & Co., of Cleveland, have opened offices in that city to handle the coal produced from their mines in the river district. This will be shipped via the lakes this summer.

Capt. James Hamilton, master of the barge Russia, is lying in the hospital at Lorain with a fractured skull. He was walking over the deck load of ties when he lost his balance and fell from the boat to the dock. The injured man lives in Alpena, Mich.

Iron ore is beginning to pile down to Lake Erie but the docks are well filled having a million tons more than last year and the furnace piles are also well stocked. Seventy-five cents is the Pittsburg Steamship Co.'s rate from the head of the lakes.

The report that the State of Ohio had sunk a scow in this harbor on Tuesday morning is slightly incorrect. The Ohio, Capt. Alex McLachlan, is still in Detroit. It was the State of New York, Capt. Robinson, that got the scow under her bows and sunk her.

W. J. Farasey, the agent for the Rutland Transit Co., sent out notice yesterday that the first boat out of Cleveland will be April 20. The warehouse is now open and freight is being received for Chicago and Milwaukee and all points west thereof, in connection with diverging railroads.

Notwithstanding reports to the contrary, the officials of the American Ship Building Co. say they are getting a fair supply of steel and that the scarcity of shapes and plates does not interfere with the taking of new orders. Several deals for new boats are on and if all other matters are satisfactory there will be no trouble about getting the material.

The announcement is made by H. R. Rogers, the general freight agent of the Cleveland & Buffalo Transit Co., that the freight office is opened for the receipt of freight intended for transportation to Buffalo and the east. This is in preparation for the first sailing, which will be Monday, April 21.

J. R. Charles, formerly general agent of the Omaha, Kansas City & Eastern Railroad Co., at Cleveland, has been appointed traveling freight and passenger agent of the lakes lines represented by Bartlett & Tinker, this city. The lines in question are the Union Transit Co., Merchants' Montreal line, Lake Erie Navigation Co., and Merchants' Port Arthur line.

W. J. Farasey, forwarding agent, River street, announces that the Lackawana Green Bay line will have its first boat out of Cleveland about April 20th, and that the warehouse is now open for receiving freight for Mackinac, St. Ignace, Escanaba, Menominee, Marinette and Green Bay, Wis., also all points west thereof in connection with diverging railroads.

It is officially announced that the first boat of the Cleveland & Buffalo line between this city and Buffalo will be run next Monday night. The City of Erie will arrive here Monday afternoon from Detroit, where she has been spending the winter, and will make the first trip. The City of Buffalo will come over the following day, and the daily service will be resumed.

J. W. Warner has moved his office from the second floor of the Perry-Payne building to the third floor of the Wade building. Mr. Warner has been expanding his business of late and needed more room which could not be obtained in the other building, hence he moved across Superior street. He will remain as a vessel broker, in which line he has been one of the factors for several years, as his father was before him.

John B. Cowle is the name selected for the large freight steamer-building at the works of the Jenks Ship Building Co., Port Huron, and which was recently purchased by Capt. W. W. Brown, of this city. Capt. Cowle has been connected with vessel interests in Cleveland for a great number of years past. He was one of the principal stockholders in the Globe Dry Dock Co., which was absorbed by the ship building combination.

A new steamer is to be launched from the Lorain yards of the American Ship Building Co. in about three weeks for W. A. Hawgood & Co., of Cleveland. She will be named the James M. Jenks. She is the second of an order for three boats placed by the same firm with the American Ship Building Co. a short time ago. The keel of the third boat was laid at Lorain yesterday afternoon. It is expected that she will be ready for launching about the middle of July.

The following meteorological observations are furnished by the office of the United States Weather Bureau, for the week ending April 16: Prevailing wind directions for the week, west; highest velocity, 35 miles from the west on the 12th; mean temperature for the week, 43°; highest temperature, 58° on the 10th; lowest, 32° on the 15th. Sunrise and sunset data computed for local time: April 18th, sun rises, 5:16, sets, 6:44; April 21st, sun rises 5:11, sets, 6:48; April 24th, sun rises 5:06, sets, 6:52.

The Shipbuilders' and Calkers' National Union of America was organized at Toledo on Saturday night by the election of the following national officers: President, Jos. Dompiers, of Toledo; first vice president, John S. Nagell, of Cleveland; second vice president, Michael Clark, of Chicago; secretary, William H. Harder, of Toledo; treasurer, R. W. Bailey, of Cleveland. The first national convention of the union will be held in Cleveland July 1, at which time an effort will be made to establish a universal scale of wages on the chain of lakes.

Word was received in the city last Saturday night of the death of Capt W. H. McNelley, a well known Cleveland lake captain. Capt. McNelley lived at No. 38 Fulton street, and his death was the result of an accident that occurred on April 12, at Eagle Harbor, on Lake Superior. Capt. McNelley was in the hold of the steamer Progress when he was struck and instantly killed by a falling hatch. Capt. McNelley was one of the best known marine men in Cleveland. He was 72 years old and had been on the lakes during the greater part of his life. He leaves two sons and a daughter, George F., Ellen E., and O. H. McNelley. The remains arrived here and the Lake Captains' Association took charge of the services.

As was expected, when the conference between the dock managers and the longshoremen concluded, the former have decided that they will charge the vessel owners 19 cents a ton for the handling of ore out of the holds of vessels. This is the rate charged last year. The vessel men, however, had to accept a 5 cent reduction on last year's carrying charges, which makes their net loss per ton that amount. On the basis of 75 cents between Duluth and Ohio this will leave the vessel interests 56 cents a ton out

of which to pay expenses and reap dividends. It means that much better dispatch will have to be given the boats this year or the dividend possibilities on boat stock will be much reduced.

The Senate committee which is acting upon the rivers and harbors bill has permitted the measure, as it passed the House, to go through without a change affecting the harbor of Cleveland and without any reductions for the Cleveland district. In fact, two appropriations have been increased. A short time ago Major Kingman, the engineer for this district, appeared before the heads of the departments at Washington and requested the increase in the appropriations for the harbors of Huron and Ashtabula, and the Senate bill grants both requests. It is expected that little opposition will be experienced when the bill is returned to the House. Huron had been allotted \$25,000 but the bill now will give that port \$40,000, for this year's improvement. This is needed because of the increase in the dock facilities there which will permit of the handling of larger boats. Ashtabula's allotment under the bill has been increased from \$135,000 to \$200,000 to take care of the improvement work there on both the channels and the breakwater. In the Cleveland section of the bill the appropriation for dredging apparatus was not touched, although some of those for other ports were cut out, among them being that of Duluth. The Cleveland dredge will be built, as it appears now, as an experiment.

At a meeting of the directors of the Great Lakes Towing Co. yesterday afternoon the regular quarterly dividend of 1 3/4 per cent. was declared.

PORT HURON.

Special Correspondence to The Marine Record.

The Lynn Bros. have opened up their marine reporting office at No. 4 Butler street, and are in position to charter, buy and sell vessels.

The McKay steamers, of Hamilton, will go into the ore carrying trade at Sarnia this season. New docks are now being built for unloading at this port.

The steamer Etruria has been granted official numbers by the Bureau of Navigation. She is 4,744 gross and 4,439 net tons; built at West Bay City and hailing from this port.

The steel steamer Bramsford, built at West Bay City, and hailing from this port, has been granted official numbers by the Bureau of Navigation. Her gross tonnage is 4,744 and net 4,439.

The work on the new lake and ocean steamer Kanawha, building at the yards of the Jenks Ship Building Co., is being pushed so that she may be ready for her trial trip about the first of May. She is a very fine ship and is fitted out with the latest improvements. All her machinery is fitted with National Lead Co. Phoenix metal. Just as soon as she is completed she will leave for Escanaba to go into the ore trade for the Iroquois Iron Co., of Chicago.

The position of manager, heretofore held by W. Askin, at Collingwood, has been abolished. Mr. Askin has been appointed assistant manager at Sarnia, Ont., in charge of the Northwest Transportation Co., which is owned by the N. N. Co. A. B. Pratt, heretofore general freight agent, has been appointed assistant manager at Collingwood. It is probable that a general manager will be appointed. At present the company's business is in direct charge of Vice President J. J. Long.

When the tug Boynton, of the Great Lakes fleet, arrived here from Detroit last Thursday morning, she was immediately ordered into quarantine by the local health officer, one of the firemen, Michael Hythaler, having been taken down with smallpox on the trip. Ten men comprise the crew of the boat and none will be allowed to leave her until they have been vaccinated and everything aboard the craft has been thoroughly fumigated. Hythaler shipped on the boat at Detroit.

Thomas Dunford, the well known ship-yard and dry-dock man, died at his home on Tuesday night from injuries he received in a runaway accident a few weeks ago. Mr. Dunford started in the dry-dock and ship-yard business some forty years ago with the firm of Leighton & Dunford. They built several vessels and tugs, when the firm was dissolved. Del Alverson then entered the business, the company being known as the Dunford & Alverson Dry-Dock Co. After continuing for twenty years Mr. Alverson retired about a year ago, leaving Mr. Dunford the sole owner.

Hon. Mr. Tarte stated recently in the House of Commons that with the dredge built by the Polson Co. for the government, dredging can be done at a cost of less than one cent per yard. He says that this is the last year that the government will have to ask for a large vote for dredges. They expect in two years to have the channel between Montreal and Quebec dredged to a width of 450 feet in the straight and up to 800 feet in the curves and of a depth of 30 feet. There is about one mile below Quebec to be deepened. The sum of \$500,000 is asked this year for dredging.

BRITISH NAVAL ARCHITECTS.

The Institution of Naval Architects held their annual meetings in London last month, when the president, the Right Hon. the Earl of Glasgow, occupied the chair. The meetings were largely attended by prominent representatives from the various shipbuilding centers. A direct outcome of the recent Glasgow meeting was the formation of a committee to inquire into the question of mercantile auxiliaries, dealt with in Lord Brassey's paper. The Council have the pleasure of announcing that, at their request, the president has laid the matter before the First Lord of the Admiralty, who has kindly promised to give full consideration to the views of the Institution.

A second committee has been formed to consider the possibility of establishing an experimental tank for the use of all shipbuilders throughout the kingdom, where models of proposed designs could be tested for resistance. The members of this committee are preparing a scheme for giving effect to the resolution unanimously passed at Glasgow in favor of establishing such a tank at an early date. A small committee has also been appointed by the Council to inquire into the question of standardising ships' calculations referred to the Council by the Paris Congress of 1900, and dealt with in the paper by Professor Biles read before the Glasgow summer meeting. The Council have also joined with the leading technical institutions in forming the Engineering Standards Committee, whose sub-committee dealing with standard sizes for ships' sections has been placed under the chairmanship of Mr. A. Denny, in whose hands the Council feel that the interests of shipbuilders will be fully safeguarded.

The Earl of Glasgow delivered his presidential address. He referred to the condition of shipbuilding, and said that the returns of mercantile tonnage launched during the year continued to show a steady growth over the past years, and if, at the present moment, the output is somewhat in excess of the immediate demands, the great expansion that is taking place in the world's commerce promises to justify this increase at no distant date.

The 639 vessels of the mercantile marine launched during the year in the United Kingdom, have aggregated 1,524,739 gross tons, or 82,368 tons more than last year, this being an increase of 5½ per cent. on the previous best year, while for the Royal Navy 41 vessels of a combined tonnage of 211,969 tons have been built, this being 10 per cent. more than the largest previous yearly output (1898).

The total tonnage under construction at the close of last year was 89,000 tons more (or 7 per cent.) than the corresponding amount twelve months before. But we must not lose sight of the fact that, great as has been the growth of British shipbuilding during recent years, other nations have entered the lists, and are straining every nerve in the great struggle for the markets of the world. In Germany, France, and the United States, we see our greatest rivals taking advantage of every advance in scientific research, every improvement in labor and time-saving devices, to outstrip us in the race; and in shipbuilding, their efforts seem likely to receive further extraneous assistance from the bounties which their governments have either already established, or with which they contemplate fostering this branch of trade. Whether this assisting of an industry that apparently shows every sign of increased vitality will not, in the end, defeat its own objects, remains for the future to prove.

The great strides that have been made in recent years in American shipyards are significant of the practical manner in which the subject has been taken up in that country, and British shipbuilders will do well to keep before them the need of constant thought and effort, and of improved methods unhampered by custom or conventionality. The returns of German shipbuilding show that, exclusive of war vessels, 217,600 tons were built in 1901, which compares with 204,700 tons in 1900, or an increase of 6½ per cent.; this includes such steamers as the Kronprinz Wilhelm, of 14,900 tons, and the Blucher and Moltke, of 12,372 tons each; while the 66,470 tons of warship construction launched in Germany during the past year is the highest return of all the foreign powers for that year.

The United States output for 1901 is very large: 433,200 tons were launched, as compared with 333,500 in 1900, but this includes no less than 159,300 tons of steamers on the Great Lakes, and 135,400 tons of wooden and sailing vessels, thus reducing the output of steel and iron ocean tonnage proper to 138,000 tons. This latter figure compares with 71,423 tons for the previous year, the output of merchant (ocean) tonnage having, therefore, nearly doubled, while the figures for warships are no less remarkable, 25,000 tons in 1900, and 48,000 tons in 1901. In France, the returns also show a large increase upon last year's output, the figures being (exclusive of 54,861 tons of warship) 177,500 tons in 1901, compared with 116,850 tons in 1900, an increase of over 50 per cent. This includes the very large total of 124,600 tons of sailing vessels, a direct outcome of the heavy bounties on shipbuilding and ship-owning which the Government have seen fit to grant.

This policy, which the French have so strongly adopted of late years, no doubt accounts for the large returns of tonnage built, but we must not forget that this is only one aspect of a much larger economic question, and one which affects a far wider range in a nation's welfare than merely its shipbuilding interests.

In the field of marine engineering the two reports of the Admiralty Water Tube Boiler Committee have caused the attention of engineers to be still engrossed by this much-

discussed steam generator. Reference was made to the first report in my address delivered at the spring meeting of last year. The second report, issued last month, contains full details of some of the most elaborate trials ever made with vessels of war. Whatever may be the result of the investigation upon the type of boiler ultimately adopted for use in the Royal Navy, the information given in the report, in regard to the performance of the machinery, will be of great value to marine engineers of all classes. The report, which has been published in full by the technical press, will doubtless have been read by the majority of the members of the Institution, and I hardly think it necessary for me to enter into the details of a subject so entirely technical, and upon which such diverse opinions appear to be still held. It may, however, be pointed out that, whatever may be the respective merits of the shell boiler and the water-tube boiler, or of different types of the latter, the navies of the world appear to have definitely decided to adopt the newer form of steam generator in one or more of its many forms. In motive machinery afloat, the changes now being made are chiefly in details of construction. The triple-expansion engine is still being fitted in ships of the Royal Navy, but in the mercantile marine the fourth step in compounding is now frequently made. The newer ships for the American Navy are also to have quadruple-expansion engines. One of the chief matters of interest among naval engineers at present is the steam turbine. It is so entirely different in principle and construction from the reciprocating cylinder and piston engine, that, whatever its merits may ultimately prove to be—and it undoubtedly is a practical marine motor—its appearance in the world of marine engineering must always remain an event of the greatest interest. During the past year, the marine steam turbine has been put to a commercial use in a very practical way. A passenger steamer, the King Edward, built by Messrs. Wm. Denny & Bros., of Dumbarton, and fitted with the new type of machinery by the Parsons Marine Steam Turbine Co., of Wessend-on-Tyne, was put on the route between Farlie and Campbelltown early in the summer, and was run on the regular service for the rest of the season, and the proprietors are constructing a larger and faster vessel of the same type. Turning to another aspect of marine engineering afloat, one notices that the practical employment of liquid fuel for generating steam has also been a good deal canvassed of late. This is rather a commercial, or an economic problem, than an engineering one, as it is well known to those who have used liquid fuel on ocean voyages, that there is no difficulty whatever in burning it.

The naval authorities of the different maritime powers have given a good deal of attention to the question as applied to warships, and a large number of experiments have been made. Although the details of these have not been made public, it is generally reported that liquid fuel is looked upon as likely to prove a valuable auxiliary in case of war. It is now some years since Sir Edward Reed drew attention to the advantages of liquid fuel. Whether those who are now endeavoring to establish this new departure in ocean steamships and warships—for now it would be in regard to its magnitude—will succeed in placing it on a working basis, time and experience will prove; but when one remembers the benefits that are promised—cleanliness, saving of labor, reduction in the number of stokers, economy of space, and reduced weight to carry—one must recognize that its success will be a great boon. The equipment of shipyards is a problem of mechanical engineering which has occupied a good deal of attention of late.

The development of electrical power appliances has opened up resources by which the shipyard manager may save in cost of construction and facilitate work at the same time. This applies not only to the driving of machinery, but also to the working of lifting appliances. The machine tools in a shipyard are widely spread, and often in exposed situations; so that there is considerable loss from condensation in the long lengths of pipe when they are steam-driven, and the engines are often kept turning for considerable periods when the machines are not in use, simply to prevent cylinders filling with water. Electricity naturally overcomes this difficulty. For lifting and transporting material, gantries are erected to carry fast-running overhead electric traveling cranes; these are on the cantilever principle, and can serve two building ships.

The following papers were read and discussed: "Torpedo Boat Destroyers," by Sydney W. Babnaby, Esq.; "The Stresses in a Ship's Bottom Plating due to Water Pressure," by Ivan G. Boobnoff, I. R. N., of St. Petersburg; "Liquid Fuel for Ships," by Sir J. Fortescue Flannery, M. P.; "The Navipendular Method of Experiments, as applied to some Warships of Different Classes," by Capt. G. Russo, R. I. N.; "The Necessity for Fixing a Standard of Stability for Sea-Going Ships," by Professor J. H. Biles, LL.D.; "The Straining Forces in Crank Shafts," by Professor Stanley Dunkerley; "Torsional Vibrations of Shafts," by Herr L. Gumbel; "Improvements in Propeller Shaft Bearings," by A. Scott Younger, Esq., B. Sc.; "Modern Scientific Developments and the Future of Naval Warfare," by W. Laird Glowes, Esq.; "Distortion in Boilers Due to Overheating," by C. E. Stromeyer, Esq.; "The Corrosion of Condenser Tubes and Sea-Water Conductors," by Professor E. Cohen, of Amsterdam; "The Methods of Handling Material Over Shipbuilding Berths in American Shipyards," by W. A. Fairburn, Esq.; "A Comparison of Five Types of Engines with respect to their Unbalanced Forces and Couples," by Professor W.

E. Dalby, M. A. B. Sc.; "A Note on Simpson's Rules," by J. Macfarlane Gray, Esq. The Annual Dinner of the Institution was held on 19th March, in the King's Hall of the Holborn Restaurant, when the Earl of Glasgow presided.

REVIEW OF THE WORLD'S COMMERCE.

The commercial reports of diplomatic and consular officers for the calendar year 1901, record continued growth in the sales of many lines of manufactures from the United States in foreign markets, and the increase of the general concern in Europe as to the possible results of our industrial competition.

Although the figures of our exports compiled by the Treasury Department show a considerable falling off in the total value of manufactured goods sent abroad, there seems to be a steady and uninterrupted spread in the popularity of what may be termed American novelties all over Europe. By the word "novelties" are meant not only labor saving implements and machinery to which most Europeans were strangers, but a great variety of articles of merchandise, such as boots and shoes, leather goods, hats, clothing, rubber goods, furniture and household utensils, hardware and cutlery, canned goods, glassware, clocks and watches, scientific apparatus, electrical supplies and cotton, silk, and woolen textiles, all of which possess distinguishing points of excellence and relative cheapness new to Europe, which commend them to purchasers there in preference to similar articles of home manufacture. In other words, while the aggregate of our exports of manufactured goods has shrunk, the variety of our sales in Europe is being extended and the territory upon which they are encroaching is being steadily enlarged.

Whatever be the force of these conclusions, they do not necessarily detract from the efficiency of the United States as a competitive force in the world's markets, for they do not in any way affect the advantages peculiar to us as an industrial nation; but if they did, they would be offset by drawbacks such as insufficient supplies of raw material and fuel, under which the other manufacturing countries must, in the very nature of things, continue to labor. Moreover, it will probably be a long time before the conservative, slow-moving industrial forces of Europe will adapt themselves to the novel requirements which American ingenuity and enterprise have created. Both labor and capital in Europe would seem to have a long and difficult task ahead of them before they shall have approximated to the economies of production which we have mastered.

SHIPYARD FOR COLLINGWOOD.

A dispatch appeared in the dailies on Saturday saying that The Bertram Engine Co. would move their shipbuilding industry from Toronto to Port Burwell, on Lake Erie, where it was said that they would locate a plant to cost \$100,000 and give employment to between three and five hundred men. The manager of the company, while stating that the dispatch was not authorized, said that Port Burwell had had their consideration regarding a shipyard site, but as yet no location had been settled upon.

In connection with this the Collingwood Bulletin has heard a rumor to the effect that negotiations are going on looking toward the amalgamation of the Collingwood Shipbuilding Co. and the Bertram Engine Co. If this is consummated it is said that it is the intention to build the larger class of vessels at that port, and to continue the yard at Toronto for the building of boats of Welland canal size and under.

The Toronto Co. are looking for a location where the local conditions and conditions for freight for market will meet the conditions of their business. Collingwood will meet all these requirements, and it is to be hoped that the Canadian steel center of the north will be so selected.

STATEMENT OF THE VISIBLE SUPPLY OF GRAIN

As compiled by George F. Stone, Secretary Chicago Board of Trade April 5, 1902.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	546,000	95,000	50,000	.....	231,000
Chicago.....	6,276,000	4,604,000	644,000	772,000	60,000
Detroit.....	170,000	86,000	3,000	32,000	6,000
Duluth.....	14,032,000	64,000	187,000	461,000	330,000
Fort William, Ont..	4,656,000	.....	.....	.....	.....
Milwaukee.....	471,000	293,000	16,000	24,000	118,000
Port Arthur, Ont....	275,000	.....	.....	.....	.....
Toledo.....	38,000	528,000	378,000	13,000	.....
Toronto.....	54,000	.....	16,000	.....	8,000
On Canals.....	46,000	3,000	87,000	37,000	50,000
On Lakes.....	2,767,000	238,000	133,000	226,000	.....
On Mississippi Riv..	.....	.....	.....	.....	.....
Grand Total.....	46,611,000	7,550,000	3,054,000	1,972,000	1,178,000
Corresponding Date 1901.....	51,873,000	22,090,000	11,271,000	1,035,000	819,000
Increase for week..	.....	.....	.....	.....	.....
Decrease " ".....	1,799,000	958,000	246,000	44,000	277,000

While the stock of grain at lake ports only is here given, the total shows the figure for the entire country except the Pacific Slope.

STEAM TURBINES.

BY TECUMSEH SWIFT.

I suppose the fellow who dreams first is entitled to dream the farthest. It is the habit of the literary world to picture inventors as dreamers. It seems to be argued that those who have given to the world its epoch-making inventions must have known what they were doing, and must have foreseen the effects of their devices far into the future. The boy James Watt watching the boiling tea-kettle is the typical and most familiar of this class of dreamers. If he did dream, and it is morally certain that he didn't, what could his dream have amounted to as compared with the equally possible dream of Hero of Alexandria? It seems to be as clear as that Shakespeare wrote Shakespeare that Hero made a steam turbine, but whether he made the first one or not we may question more and more as we go along. When Hero's turbine first began to turn it would have been very proper for him to have sat down beside it and to have had his doze and his dream. If his dream had been thoroughly done, it should have carried him swiftly right up to the present time and far beyond it, for now quite evidently the day of the steam turbine is fully dawning.

The Parsons turbine has been unfortunate in being put into egg-shell boats and coming to grief in consequence, but its efficiency, as also that of the Westinghouse turbine in this country and some others, we may consider to have been fully demonstrated. The latest and completest endorsement of the steam turbine is in the announcement that a contract has just been made in England for ten of underground railways of London. This business endorsement, it seems to me, completes the evidence for the steam turbine, and it would not be surprising to see it go with a great rush.

This success of the steam turbine must come as a great surprise to many. There are multitudes who could not have believed it possible. I suppose it is a simple fact that not one-tenth of the thought and the experimenting has been expended upon the steam turbine as has been bestowed upon the various types of rotary engine. The rotary engine is discredited everywhere, and this, no doubt, has been a potent deterrent of the turbine. The latter has been regarded as in the same line of development as the rotary engine, but further along; and so it has generally been assumed that as the rotary engine was demonstrably bad and hopeless, the case of the turbine must have been vastly more so. The bold men who were not deterred by the rotary-engine slough of despond are to be congratulated upon the firm standing they have secured beyond it.

This success of the steam turbine must be the begetter of another series of dreams, and most likely bad dreams, although not necessarily far-reaching ones. The builders of reciprocating engines may find their occupation going, gone. Of course, coincidentally therewith must come an equal development of steam turbine manufacture, but what a change is at once implied in the equipment of the engine manufacturing plant. There will be a lot of machines to be thrown out and new ones to be put in. Not only will less material and less work be required for engines of a given power, but the character of both the material used and of the work put upon it will be changed. The mere abandonment of the reciprocating feature of the machine throws out at once most of the planers and many of the shapers and slotters, while the lathe work also is reduced and the usual dimensions and character of it are changed. The changes implied are not by any means all in the engines themselves, but usually throughout the intermediate mechanism of transmission between the power and the work. The reciprocating engines are comparatively slow moving, and with them there is usually a speeding up through the belts and gearing, while with the steam turbine it is in every case a speeding down instead of a speeding up, so that lighter connections or transmitters of the power will be the rule. The steam turbine, by reason of its high speed, seems to distinctly adapt itself to the requirements of electrical practice, so that it and the electric generator may be expected to be hereafter most intimately associated.

This coming of the steam turbine is another agency that is transforming the routine of the working machinist. The trade, as we all know, has undergone great changes. A half a century ago the ideal work of the machinist apprentice, and indeed of the journeyman, was steam engine work. This was as a rule the best work of the shop, the work with the most distinctive character of its own, and nearly every shop had its share of it. To-day not a quarter of the shops, I suppose, do steam-engine work, and some of the best workmen in the trade have never done steam-engine work. This has come to be so up to the present time without any cessation of the normal growth of steam-engine construction. More and more engines have been built continually, but the growth of the business of machine construction in general has been so rapid and has extended in so many and so diverse directions that the steam engine has ceased to be the central and most prominent part. There has been up to now no essential change in the component parts of the steam engine. They still have their cranks, crossheads, slides, connecting rods, eccentric and all the rest of the familiar pieces. The steam turbine threatens now to drive out all these, and the special lines of skill which they called for must become scarcer, and there will be those who will be whining more persistently than ever about the decadence of the trade and the scarcity of the old-time skill. It may be well to remember that it is the new skill and not

the old skill that is wanted, and the new conditions will not fail, as I believe they are not failing, to develop and supply it. I may be a little ahead of things in talking in this strain about the coming of the turbine, but just think of conservative but well informed engineers planning the installation of 70,000 horse-power of steam turbines not at all for experiment but for every day business, and the money all ready for them. With the railway trains that they are to drive chasing me I am not likely to be far ahead for long.—American Machinist.

THE SHIPMATE RANGE.

(ILLUSTRATED.)

For twenty-one years the Shipmate Range has been sold on the Atlantic coast, and as a natural result of such long continued sale it is the best known range there, as well as on the Gulf and Pacific coasts.

For several years this range has been sold to some extent on the lakes; but the rapid increase in the size of vessels built for the lake trade has rendered necessary something larger than any of the Shipmate Ranges heretofore made.

To meet the requirements of such large vessels the No. 65 Shipmate has been made.

This is a five-foot, two-oven range suitable for cooking for from 65 to 75 persons, according to the requirements.

The matter of durability has had careful consideration in its construction, and the range is made very heavy, to stand the hardest kind of use.

The top is composed of removable plates, the section immediately over the fire having two rings and a small cover.

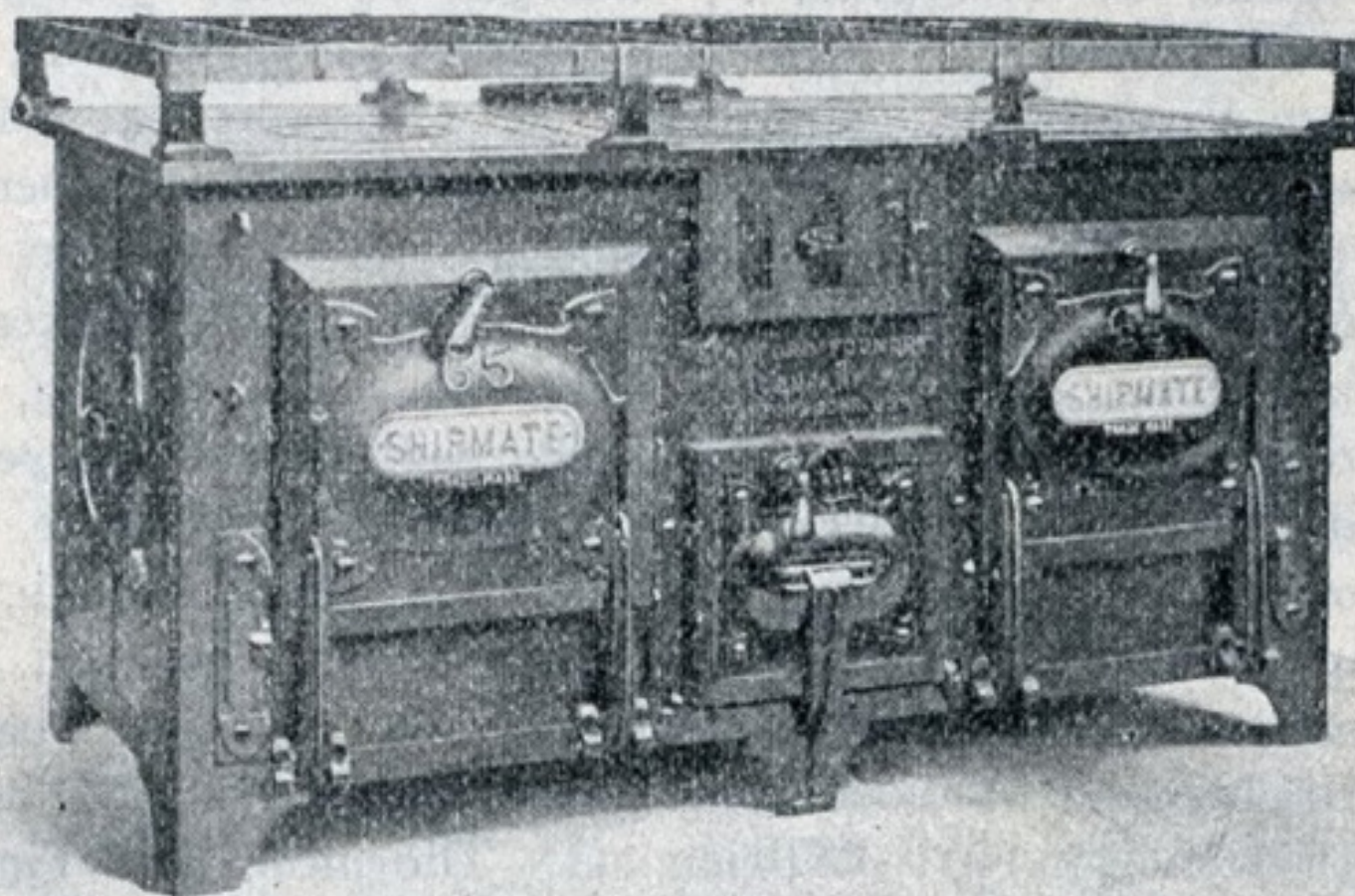
By an invention patented by the makers of these ranges the grate-frame is dispensed with; and the bricks lining the fire-box are independently supported, and have their lower edges protected by heavy guard strips, which are not disturbed when the grate is removed or changed.

The guard strips are taken out or put in without disturbing the bricks or even loosening a bolt.

Each down flue has an independent damper, by means of which the amount of heat going to each oven can be closely regulated.

Nearly all of the heat can be thrown to either oven, if desired.

The doors all drop, and are supported horizontally,



when open, by strong braces, which will sustain several hundred pounds.

The ashpit door can be opened sufficiently for draft, without extending into the room; or can be let down to a horizontal position, when ashes are to be removed, forming a hearth preventing the dropping of ashes.

The Stamford Foundry Co., Stamford, Conn., will be pleased to send, free, a catalogue giving full description of this and the other sizes of Shipmate Ranges.

SOUND SIGNALS AT SEA.

The following conclusions respecting sound signals at sea have been reached by British experts:

1. In calm weather low notes are heard further than high; but the reverse is true when the sea is rough and when the wind is opposite in direction to the direction from which the sound arrives. It sometimes happens that the sound of the signal is much weakened, or even extinguished in a certain region while other areas, more distant even, hear the signal. This phenomenon has been especially noted during calm weather.

2. To hear a signal during fogs it is advisable to stop all noises on the listening vessel. It is better to stop the ship's engines.

3. Under no condition is a sound signal always certain. It is, therefore, to be considered only as an auxiliary warning.

LITERARY NOTES.

JAMES B. CONNOLLY, the new writer of sea stories, who has gained such a quick reputation, will have in the May Scribners an account of a cruise on a North Sea smack, full of character sketches and amusing adventures, with striking illustrations by M. J. Burns, who accompanied the author on his cruise.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR MARINE RECORD.)

Practice—Power of District Court to Establish.—A district court has power, under admiralty rule 46, to establish the practice of permitting process in rem and in personam to issue upon the same libel, either by rule or decision. *The Planet Venus et al.*, 113 Fed. Rep. (U. S.) 387.

Defective Appliances.—Any duty of a ship to a longshoreman in the employ of a stevedore, in loading, relative to suitable appliances, in the furnishing of a hook for loading, is fulfilled where the hook is reasonably safe for the work in hand. *The Noranmore*, 113 Fed. Rep. (U. S.) 367.

Seaworthiness of Vessel—Presumption.—The presumption that a ship is seaworthy when she undertakes a voyage is relievable, and may be overcome, not only by direct proof, but also by circumstances. *La Fernier vs. "Soo" River Lighter & Wrecking Co.*, 89 N. W. Rep. (Mich.) 353.

Admiralty—Joinder of Defendants—Suits on Contract of Affreightment. A ship and its charterers may be joined as defendants in a suit in admiralty to enforce a contract of affreightment where both are charged with liability for its breach, such practice being within the spirit, though not the letter of admiralty rule 59. *The Planet Venus et al.*, 113 Fed. Rep. (U. S.) 387.

Vessels—Navigation—Maritime Contracts.—An agreement by which one of the parties undertakes the responsibility of navigating a vessel on the ocean and bringing her back to her home port for a stipulated compensation is essentially a maritime contract. *The Laurel*, 113 Fed. Rep. (U. S.) 373.

Overtaking Vessel.—Where an overtaking steamship is passing too close to another so as to create danger of a collision the latter is justified in slowing, or even reversing, so as to shorten the time of passing, and such action cannot be charged as a fault by the overtaking vessel in case of collision. *The Aureole*, 113 Fed. Rep. (U. S.) 224.

Shipping—Injury to Stevedore—Independent Contractor.—A ship is not liable to a longshoreman employed by a stevedore, an independent contractor, to assist in loading, for injury caused by falling of athwart portions of hatch cover, because of failure to have in place bolts to hold the cross-beams on which such athwart portions rested; the ship having been turned over to the stevedore, and he having removed all portions of the hatch cover, including the crossbeams, and put them back without properly fastening them. *The Noranmore*, 113 Fed. Rep. (U. S.) 367.

Negligent Navigation—Jury Questions.—The act of Congress regulating navigation, requiring that steam vessels, when about to meet in channels of less than 500 feet wide, shall each slow down to moderate speed, according to circumstances, and there being evidence to show that defendant's boats were running eight miles an hour when they met the tug, and that the steamer was unable to manage her tow, the question as to whether there was negligence in the manner of navigating and managing defendant's boats was for the jury. *Hackett vs. Wilson Transit Co.*, 89 N. W. Rep. (Mich.) 350.

Contributory-Fault—Presumptions.—Under the rule that, where the fault of one vessel for a collision is clearly established, she must establish the contributory fault of the other by evidence equally clear, and that every presumption will be indulged in favor of the latter, where there was evidence showing that a light was burning on an anchored schooner half an hour or less before she was struck and sunk by a passing steamer, which was clearly in fault, it will be presumed that such light was burning at the time of collision. *The John H. Starin*, 113 Fed. Rep. (U. S.) 419.

Collision.—Evidence considered, and held to show that a collision between two steamships, one of which had overtaken and was passing the other in the Delaware river at a place where the water was shallow as compared with the draught of the vessels, was due to the fault of the overtaking vessel in passing too close to the other, so as to create a suction which caused the overtaken ship, which was the smaller of the two, and had slowed to half speed, to deviate from her course and draw against the other. *The Aureole*, 113 Fed. Rep. (U. S.) 224.

Cause of Collision—Suction.—The force called "suction," exerted by one vessel on another, due to the creation of currents by a moving vessel, and the effect of which is apparently greatest when a larger and faster vessel is passing another moving in the same direction in shallow water and a narrow channel, has been recognized in many cases by courts of admiralty; and a court is not justified in refusing to consider it as a cause in a case of collision between two steamships, one of which had overtaken and was passing the other in a river at a distance of not more than seventy-five to one hundred feet, and where, under the evidence, it appears that the overtaken vessel, though with her helm hard-a-port, suddenly sheered to port and struck the other after the latter had nearly passed. *The Aureole*, 113 Fed. Rep. (U. S.) 224.



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CLEVELAND, O., APRIL 17, 1902.

THE SHIP SUBSIDY—RIVER AND HARBOR BILL.

With the river and harbor bill now in the Senate, having passed the House, and the ship subsidy bill in the House, having passed the Senate, there opens a chance for some most interesting legislation along commercial and maritime lines.

There is no gainsaying the fact that up to the present the river and harbor bill stands the better chance of being carried at this term of Congress, although it is advisable to remember that the bill was talked to death in the Senate during the last hours of the second session of the fifty-sixth Congress.

It is also to be considered that the powerful influence and personality of the junior Senator from Ohio (Mr. M. A. Hanna), is distinctly opposed to the measure as a whole and in some instances most righteously so. On the other hand, the chairman of the river and harbor committee (Mr. Burton), enjoys a host of legislative and commercial friends to back his bill, he is thoroughly conversant with all possible features regarding the measure in every detail and seems to hold an impregnable position as regards the final result of his bill in the Senate, so that a river and harbor appropriation substantially as asked for is looked at from some points as an assured piece of legislation.

The ship subsidy bill has, no doubt, its best friends in the Senate, and is now in the hands of its critics, with what results remain to be seen, although the consensus of opinion seems to be that it will be held up until the next session, as those who desire to vote for it probably fear the safety of their re-election next fall, for it must be admitted that the subsidy measure is not an intensely national favorite, notwithstanding its many excellent features. It is the bounden duty of the committee on merchant marine and fisheries of the House to report the bill out and have a full and free discussion of the measure at the earliest possible moment irrespective of whether one or more members lose their seats thereby or otherwise, righteous legislation will stand the light of day and if there is any portion of the ship subsidy bill that can not do this, then a time for revision should be close at hand.

Our thanks are due Hon. S. I. Kimball, general superintendent of the life-saving service, for a copy of the annual report of the service for the fiscal year ending June 30, 1901.

The thanks of the RECORD are due the Light-House Board for duplicate copies of the list of lights and fog signals of the United States on the northern lakes and rivers. And also of the lights and fog signals of the Dominion of Canada on those waters corrected to the opening of navigation 1902. Mariners and others interested in commerce and the preservation of life and property from loss by shipwreck on the coasts of the United States are earnestly requested to give prompt information to the district inspectors, or engineers, or by direct communication to the Light-House Board, of all cases of injury to, or unsatisfactory condition of service of any aid to navigation, or of the necessity for additional aids, and of all cases in which lights are not exhibited punctually at sunset and extinguished at sunrise, when they are not properly attended to during the night, when floating aids are out of position, and of all cases in which the published instructions are not strictly complied with, that the Board may, with as little delay as possible, apply the proper remedy and prevent neglect of duty on the part of persons connected with the aids to navigation of the United States. All lights of the United States on the northern lakes and rivers and their adjacent navigable waters will be exhibited from sunset to sunrise, at all seasons when vessels can enter the ports, or are navigating in their vicinity. The dates of discontinuing and relighting the lights will vary with the seasons; but keepers will be careful to exhibit lights whenever of use to navigators. All buoys in the lakes and their adjacent waters will be kept on their respective stations as long as possible in the fall without running the risk of their loss by being caught in the ice; and they will be promptly replaced in the spring after the ice leaves.

THE NEW NAVY.

The degree of completion on April 1, of vessels under construction for the United States Navy, was as follows: Battleships—Maine, 87 per cent.; Missouri, 60; Ohio, 56; Virginia, 0; Nebraska, 0; Georgia, 8; New Jersey, 7; Rhode Island, 7. Armored cruisers—Pennsylvania, 19; West Virginia, 13; California, 4; Colorado, 22; Maryland, 12; South Dakota, 4. Protected cruisers—Denver, 77; Des Moines, 67; Chattanooga, 58; Galveston, 56; Tacoma, 41; Cleveland, 78; St. Louis, 3; Milwaukee, 0; Charleston, 2. Monitors—Arkansas, 94; Nevada, 93; Florida, 90; Wyoming, 81. Torpedo-boat destroyers—Bainbridge, 99; Barry, 99; Chauncey, 99; Dale, 98; Hopkins, 84; Hull, 82; Lawrence, 99; Macdonough, 98; Paul Jones, 87; Perry, 93; Preble, 90; Stewart, 66; Truxton, 88; Whipple, 85; Worden, 85. Torpedo boats—Stringham, 98; Goldsborough, 94; Blakely, 98; De Long, 98; Nicholson, 97; O'Brien, 98; Thornton, 98; Tingey, 74; Wilkes, 96. Submarine torpedo boats—Plunger, 85; Adder, 99; Grampus, 66; Moccasin, 98; Pike, 60; Porpoise, 95; Sharke 92.

TO CROSS THE ST. LAWRENCE.

An application by the Vanderbilt-Webb interests for power to construct, maintain, and operate a subway under the St. Lawrence between the south shore and Montreal will come before the railway committee of the city council this week. The plans which are now at Ottawa indicate that the tunnel will be the largest in the world. It will begin at the south shore near Longuil Pass, under St. Helen's Island, thence into Montreal to a central point of the east end, where the central station will be erected. The tunnel will not only be a medium for the Quebec Southern trains and for electric street cars, but for the interchanging of all business traffic and communication between the south shore, St. Helen's Island and Montreal.

The subway will have two tubes, each twenty-seven feet wide and twenty-one feet high. That for cars, passengers, and freight, will be double tracked. The second will be for teams and pedestrians having drives and footways. The cost is estimated at from \$4,000,000 to \$6,000,000.

A bill recently introduced for the same interests for permission to construct a bridge over the St. Lawrence did not get through, and this caused a change of plans to the subway scheme.

Capt. B. Boutell has sold the tug Traveler to James Playfair, of Midland, Ont., who will use the boat in connection with his lumber business. Capt. Boutell has also sold the tug Ella Smith to the Buffalo Dredging Co., of Buffalo.

TOLEDO'S COAL SHIPMENTS.

Official estimates indicate that the coal tonnage out of Toledo this season will exceed 3,000,000 tons. This will be over a million tons more than the amount sent forward from that port last year.

General Superintendent Connors, of the Hocking Valley and the Ohio Central, said:

"According to the present outlook, the Hocking Valley and the Ohio Central will deliver at Toledo close to 2,500,000 tons. This is about 800,000 tons in excess of the business of last year. It is very easy to say 800,000, but 800,000 tons of coal represents an immense amount of labor and quite a neat fortune at the present prices of coal.

"To handle this business, both the Hocking Valley and the Ohio Central docks will be kept busy for eight months. The Hocking Valley docks are now running day and night and the Ohio Central docks will be ready to start both of the rapid loading machines this week, and in a short time will be manned with night and day crews."

With the increased activity at the Hocking Valley and Ohio Central docks, the new McMyler rapid coal loading machine at the C. H. & D., and the increased facilities at Ironville, the prospects for a busy season at this port are very bright. Work has already been started on the new C. H. & D. fast coal loader.

CANADIAN CANAL EXPENDITURE.

The following is a summary of the cost of constructing, enlarging and improving the system of St. Lawrence river and canal navigation from Montreal to Port Arthur, on Superior. The amount expended to date is put down at \$66,525,937.41. Of this sum, \$24,014,340.01 has been put into Welland canal, \$4,093,025.60 into the Sault Ste. Marie canal, \$8,615,997.65, into Williamsburg canals (of which \$4,531,236.06 have been spent on the Galops portion,) over \$11,000,000 on the Lachine canal, over \$6,000,000 on Soulanges canal, nearly \$7,000,000 on the Cornwall canal; while \$2,859,382.28 has been expended on channels in the river, including \$1,043,106.49 on the north channel above Cardinal.

THE TUGMEN'S STRIKE.

A meeting of the general grievance committee of the Tug Firemen's and Linemen's Association will be held in Cleveland to day, (Thursday) as a result of which the complexion of tug affairs all over the chain of lakes may be generally changed. This is an outgrowth of the strike of the tug firemen at Duluth, where the men demanded \$2 a day, having previously been given \$1.75. The tug company refused to grant the request for the increase and the men went out, tying up the tugs. The tugmen were asked to go to work with non-union firemen, but they refused, and the strike situation was appealed to Archie Valiquet, of Chicago, the international president of the firemen's organization. He has called a meeting of the general grievance committee at Cleveland for Thursday, and it is the intention to immediately take up the proposition with the officers of the tug company. The outcome will have a widespread effect. The tugmen of Ash-tabula, Fairport, and Conneaut have agreed with the officers of the Great Lakes Towing Co., but are unable to go to work because they have no firemen. The firemen at Cleveland and Lorain have agreed with the trust as to terms, but the tugmen at Cleveland and Lorain are still out on a strike. While the situation is in part cleared, the ports are tied up as badly as ever. Nothing has been done to effect a settlement with the Cleveland and Lorain tugmen. The basis of the settlement with the ports east of Cleveland is not known, but it is said that the terms were satisfactory to both the tugmen and the company.

Every local union on the lakes may be represented by one delegate at the conference aside from the regular committee, which consists of members from Chicago, Milwaukee, Sault Ste. Marie, Cleveland, Buffalo, Toledo and Duluth.

The body of an unknown man, presumably a sailor, was found in the lake a few miles north of Waukegan. The drowned man was evidently a Norwegian, and about 35 years of age. He wore a pair of dark trousers, heavy underwear, and a black shirt, with a handkerchief loosely tied about his neck. It is thought he fell overboard from some passing vessel during the week.

LAKE FREIGHTS.

The break in grain carrying charges at Chicago and the scarcity of cargoes at that port has forced a number of vessels on the market for Escanaba ore and offerings of tonnage are more liberal than they have been at any time since the start. Going rates are unchanged at 75 cents from ports at the head of Lake Superior, 65 cents from Marquette and 55 cents from Escanaba.

The supply of coal is falling short of the requirements and the shipments to the lakes are slow. The Buffalo situation has been relieved by the ending of the strike in the mines along the B. R. & P., and that port will soon have all of the coal it desires. In this territory the delay is not occasioned by any slackness in production, but rather to the shortage of cars. The prospects, of course, are for relief later in the season, because of tremendously heavy increases in motive power and cars, but it will take some time yet to get these into the channels where they will do good to the lake coal shippers.

Owing to an over supply of tonnage sales dropped from $1\frac{3}{4}$ cents to $1\frac{1}{4}$ cents on corn, Chicago to Buffalo, on Monday. One steamer was chartered for wheat at $1\frac{3}{4}$ cents on Tuesday forenoon, and in the afternoon at the urgent request of the shipper the charter was canceled and the boat sent for ore.

Coal, Buffalo to Lake Michigan, 40 cents; Duluth, 30 cents.

During the latter part of the week a number of coal boats were placed for single trips at 35 cents to Lake Superior ports, 40 cents to Escanaba and 45 cents to Milwaukee and Green Bay. The supply of tonnage was about equal to the demand. A few small blocks of coal for the head of Lake Superior were covered by season contracts during the week at 35 cents, but very little tonnage has been tied up for the Lake Michigan trade.

LAUNCH OF THE BEATTY.

The new steel cargo steamer Charles Beatty was successfully launched at the Craig shipyard, Toledo, on Wednesday afternoon. The Beatty is the eighty-eighth boat built by the Craigs, and was built for Capt. Edward Morton, of Cleveland, and others. Miss Morton, the daughter of the captain, gracefully christened the boat, and named her in honor of one of the principal owners, Charles Beatty, of Buffalo. A party from Cleveland witnessed the boat make her initial dip. The Beatty is a modern craft in every respect. She is 224 feet over all, 40 feet beam, $16\frac{1}{2}$ molded depth. Her capacity is about 1,000 tons. She will be equipped with two Scotch boilers, carrying 180 pounds of steam, with triple-expansion engines, 15×25 and 42×36 , developing 1,000 horse power, which, it is calculated, will drive the vessel at a speed of twelve miles an hour loaded. The boat will be put in the lumber trade between St. Ignace and Ogdensburg. She will be completed about May 1. The Beatty is considered a handy steamer for the canal and minor lake port trades, and in these special lines will no doubt prove a money earner, now as in the future.

"KEYSTONE" AIR INSULATOR.

An article of exceptional interest to architects, builders and prospective owners of all kinds of structures is "Keystone" Air Insulator. The problem of insulating buildings against the extreme temperatures of summer and winter is receiving considerable attention. Such an insulator not only insures greater comfort, but decreases fuel bills.

The question of sound deadening is also one of increasing importance in all kinds of buildings. The insulation of ice boxes, cold storage compartments and buildings to maintain low temperatures produced by natural ice or refrigerating process, is also a problem of great importance.

Several materials have appeared for the above purpose, but "Keystone" Air Insulator is the most successful and economical thus far. In a paper upon successful and storage presented at the October Convention of American Warehousemen, at Buffalo, Mr. John E. Starr demonstrated the "Keystone" to be from twenty to forty per cent. superior to other materials in the various constructions commonly employed.

The exclusive selling right for "Keystone" Air Insulator, patented and manufactured by Messrs. Julius De Long & Co., of Allegheny, Pa., has been secured by the H. W. Johns-Manville Co., who are carrying stocks in various parts of the country for the convenience of their widely extended trade.

The H. W. Johns-Manville Co., are recognized the world over as pioneers in the field of heat and cold insulation. So successful have their products from Asbestos and other materials been that the marketing of "Keystone" under their name is sufficient guarantee of its adaptability to the work for which they recommend it. Pamphlets upon "Keystone" Air Insulator for the heat insulation and sound deadening of ordinary buildings, also upon refrigeration, together with samples of material, will be cheerfully furnished upon request to the H. W. Johns-Manville Co., 100 William street, New York, whose advertisement of these goods appears on page 1 of this issue.

The contract for towing the two ocean going steamers built at Cleveland in sections to dep water on the St. Lawrence has been awarded to The George Hall Co. The sections will be joined together at Montreal.

LAUNCH OF THE WM. F. FITCH.

The steel cargo steamer William F. Fitch was successfully launched at the Wyandotte yard of the American Ship Building Co., on Saturday last. The Fitch is building for the Franklin Transportation Co., of which Mr. D. R. Hanna is president. The christening ceremony was performed by Miss Adeline Hurlbut, of Cleveland. The Fitch is 366 feet over all, 346 feet keel, 48 feet beam and 28 feet deep. She will tow the barge Maitland, which is building at Buffalo.

Capt. William Cumming, who will command the new steamer, has followed the lakes from boyhood, and he is one of the most successful masters on the lakes. He brought out the steamer Cambria in 1887, which was one of the first metal boats turned out at a lake yard. The following year the steamer Corsica, of the same line came out, and he was appointed master of her. He sailed the Corsica for eight years, and left her to take command of the steamer Coralia, in 1896, which was then the largest steamer on the lakes. Capt. Cumming had charge of the Coralia until this season, when he resigned to take the Fitch.

OFFICERS APPOINTED.

M. A. Bradley—Steamer Alva, Capt. M. Mulholland, Engineer, E. C. Castle; steamer George Stone, Capt. C. H. Francke; steamer Hesper, Capt. J. A. Holmes, Engineer, J. H. Abbott; steamer Pasadena, Capt. James Buchanan, Engineer, Geo. W. Cross; steamer Gladstone, Capt. Paul Howell, engineer, W. Lockhart; steamer M. B. Grover, Capt. C. R. Baker, engineer, James Twohig; steamer, R. P. Ranney, Capt. A. E. Bullock, engineer, H. A. Vaughan; steamer Fred Kelley, engineer, J. A. Breckley; steamer J. S. Fay, Capt. J. A. arant, engineer, H. S. Brakeman; steamer S. E. Sheldon, Capt. George McGraw, engineer, John Walsh; schooner, Adriatic, Capt. Fred Green; schooner, A. Cobb, Capt. N. Gifford; schooner T. Quayle; schooner Sandusky, Capt. W. A. Searles; schooner Negaunee, Capt. O. C. Olson; schooner D. P. Rhodes, Capt. F. Brown.

Mitchell & Co.—Steamer James Gayley, Capt. C. D. Galton, engineer, William Fetting; steamer, William H. Gratwick, Capt. R. C. Jackson, engineer, R. J. Hannan; steamer, J. J. Albright, Capt. M. P. Parsons, engineer, P. Laveley; steamer, Walter Scranton, Capt. H. H. Townsend, engineer, Gus Guy; steamer, W. E. Reis, Capt. B. D. Townsend, engineer, Lewis Minnie; steamer H. C. Frick, Capt. W. W. Sharkey, engineer, F. Parker; steamer M. A. Hanna, Capt. Alex Beggs, engineer, John Riley; steamer, H. S. Holden, Capt. F. D. Galton, engineer, Wm. Fritz; steamer, Lagonda, Capt. John Baird, engineer, I. Francombe; steamer, J. J. McWilliams, Capt. F. Furtaw, engineer, H. Graves; steamer, Major, Capt. Gus E. Anderson, engineer, T. J. McCabe; steamer, R. L. Fryer, Capt. M. Stewart, engineer, F. Thomas; steamer, George T. Hope, Capt. Edward Johnson, engineer, Gilbert Newton; schooner, Troy, Capt. H. C. Diem.

NOTES.

The five-master now being built for Messrs. F. Laeisz, of Hamburg, will, when completed, be the largest sailing ship afloat. She will be named the Preussen, her designed displacement being 12,000 tons, and registered tonnage 8,000. This German built vessel exceeds in tonnage any of the American five-masters, and even exceeds the seven-masted steel schooner under construction at the yards of the Fore River Ship and Engine Co., at Quincy, Mass.

THE NAVY DEPARTMENT will adopt a new method for the training of landsmen for the service which, it is believed, will tend to increase the efficiency of the navy and prevent the entrance in the service of many men who are not qualified. In the future all green landsmen will first be given a preliminary course of training of six month's duration on land, at the end of which there will be a weeding-out process, and only the men who have shown ability will be sent to sea on training ships. The land training of the men will be conducted at Port Royal, S. C., at New London, Conn., and later at Norfolk, Va. The training ships Franklin and Richmond are to be provided with accommodations for one thousand men. This scheme is the first step toward the final adoption of Rear Admiral Crowninshield's long-advocated plan of having seamen trained at land barracks and entirely doing away with the training ship system.

THE SAN DIEGO, CAL., UNION has published an account of a new system of burning crude oil under marine, locomotive, or stationary boilers, patented by a San Diego merchant and now made in Los Angeles. It is known as "Traff's Natural Draught Liquid Carbon Heat Producer." Its novelty consists in the use of air, instead of steam, as an atomizer for the liquid fuel. The air is conducted into the furnace either under forced or natural draft, and its oxygen mingling with the carbon of the fuel is said to produce more perfect combustion, intenser heat, and greater economy of fuel than the use of steam. Instead of a jet of oil driven by steam, this apparatus has a series of what might be termed steps. The oil delivered at the top step meets a draught of air, and a portion is atomized. Falling by gravitation to the second step it meets another air draught and is further atomized, this process continuing until all the oil is atomized and blown into the furnace where combustion takes place.

DULUTH-SUPERIOR.

Special Correspondence to The Marine Record.

Eugene Raymond, master of the Thomson line steamer Pilgrim, will resign June 1 to become pilot of the new Detroit and Buffalo steamer Eastern States.

The steamer Sultana, built at West Superior and hailing from Duluth, has been granted official numbers by the Bureau of Navigation, Treasury Department, Washington, D. C.

The steamer Monohansett, rebuilt at Algonac during the past winter, was towed to Marine City on Wednesday, where extensive work on her machinery will be done. Repairs will cost about \$8,000 and the steamer will be ready for service in about ten days.

The steamer Mauch Chunk was released from the Lime Kilns on Wednesday, after lightering 1,000 tons of package freight, and proceeded to this port for repairs. When the stranded steamer was swung off the rocks she struck the drill Erie, owned by the Donnelly Contracting Co., and damaged it somewhat.

It is said that the public will not be given a chance this year at the unprofitable tourist rates which prevailed on the boats engaged in north shore traffic last year. The rivalry between the Booth and White lines was strong and rates went to pieces, with the result that both lines made little out of the passenger traffic, though the travel was good. Tariff rates will be maintained this year. At least that is the agreement. It is possible that there will be some excursion rates for Isle Royale and Port Arthur, but that famous \$5 rate for the round trip, including meals and berth, will hardly be duplicated.

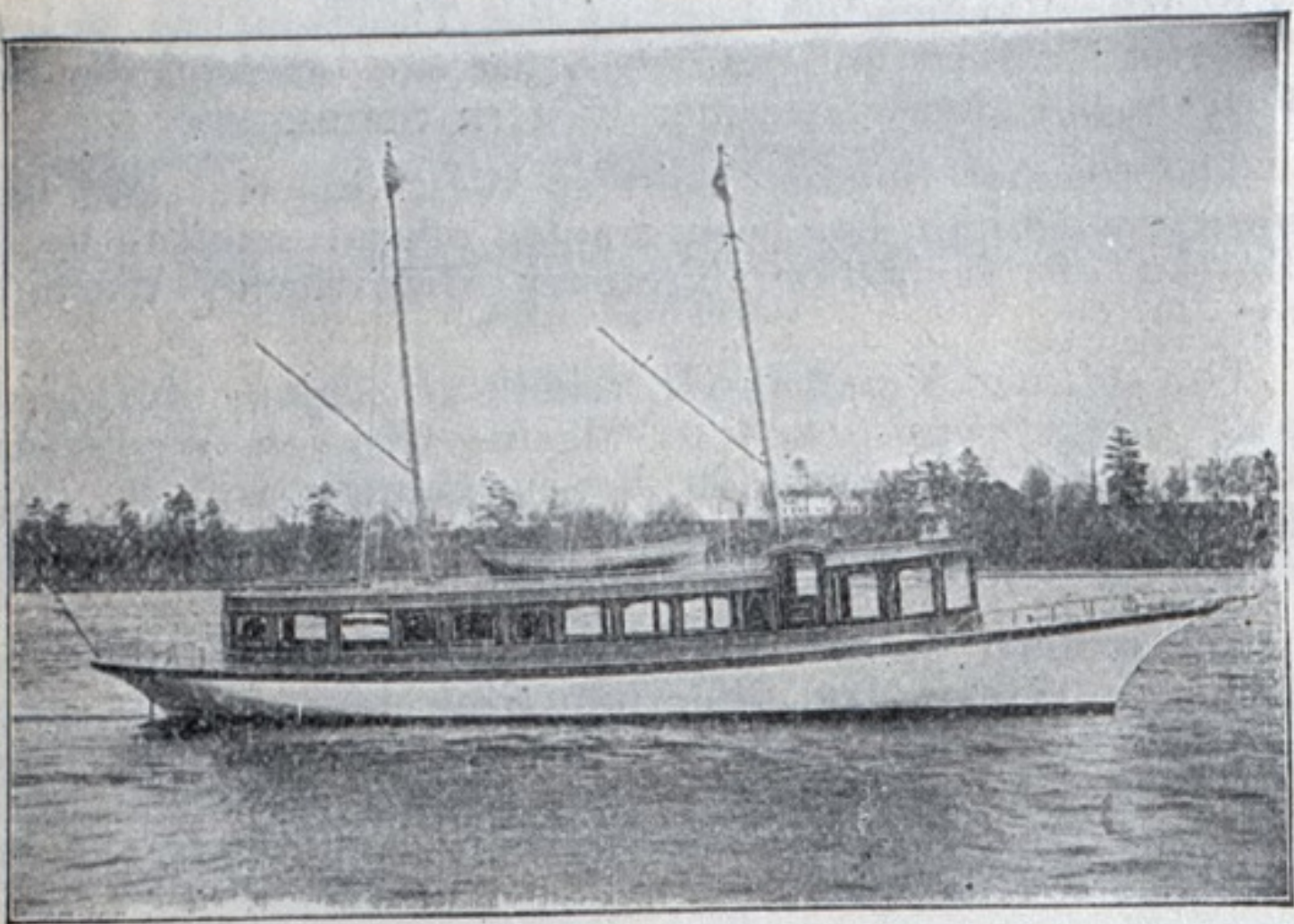
A deal involving \$2,000,000 has just been closed between the Edward Hines Lumber Co. and Bigelow Bros. The latter have sold their interests in Washburn, Wis., for what is practically a cash consideration and retire from the lumber business in that district. The deal comprises 300,000,000 feet of standing white pine, a sawmill, docks, a lumber railroad 51 miles long, and five locomotives. The Bigelow Bros. are Chicago men and among the oldest in the trade. For years they operated in Muskegon when it was the center of the white pine supply on Lake Michigan. After it was denuded they moved to the Lake Superior district and opened on a larger scale. They retain the land on which the pine stands, but the Hines Company will cut the timber.

It now seems probable that the strike of the tug firemen at this point will spread to every port on the Great Lakes where the tug trust has its boats stationed. The settlement of the strike at this port is now up to a grievance committee of the Firemen and Linemen's Protective Association, and it rests with it whether the men here return to work at the terms offered by the tug trust officials or whether every fireman on the lakes employed by the Great Lakes Towing Co. will quit work in sympathy with the Duluth strikers. The strikers here have given up hopes of arriving at a settlement of the trouble, and have so notified Grand President Archie Valiquet, of Chicago, and have appealed their case to the grievance committee of the association.

Capt. D. D. Gaillard, United States engineer in charge of government work on Lake Superior, has made a good share of his appointments for the dredging season of 1902 in the Duluth-Superior harbor. They are as follows: F. L. Denver, assistant United States engineer, is in general charge of the dredging in the Duluth-Superior harbor. H. H. Wadsworth, assistant United States engineer, is in charge of dredging under Mr. Denver on the Superior side of the bay. G. A. Taylor, junior engineer, is in charge of the dredging under Mr. Denver, on the Duluth side. H. C. Bellinger, Edwin H. Foster, Peter C. Hart, and Robert Bruner are named as inspectors at the Duluth dumping ground. Inspectors on dredges are E. K. Coe, Alex McDonald, R. A. Lowe, J. W. Neff, U. E. McLean and James Dunphy. Other appointments will be announced by Capt. Gaillard as the work of the season gets under way.

The fear of a tie-up of Lake Superior lumber tonnage has been entirely eliminated when shippers sent forth their assurances that the \$2.50 rate would be paid on pine cargoes from Lake Superior to Chicago. It developed Saturday that shippers were declining to pay more than \$2.25 per 1,000 feet on these loads, claiming to be able to obtain tonnage at that figure, but the prompt action of the Lumber Carriers' Association, which threatened to withdraw all its boats from the trade and hold out for an advance, even upon the \$2.50 rate, weakened the former, and the wires were kept busy to-day assuring vessel owners that the \$2.50 rate fixed by their association in February would be upheld. Millions of feet of lumber have been sold for early delivery, and low stocks make it absolutely essential that shipments be not deferred. A delay of even a fortnight would set shippers back considerably, and the mills would be seriously short of dock room to pile lumber which they are turning out at almost an unprecedented rate. Conditions favor the vesselmen, and they are standing together better this year than they ever have before.

Grain freights from Duluth and Fort William through to Montreal are quoted at $6\frac{1}{2}$ to 7 cents, the inside figure having been bid and the latter asked, and, it is understood, that some business has been put through at 634 cents.



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LAUNCH OF THE CHANTICLEER.

Mr. George W. Weld's new steel cruising schooner yacht, Chanticleer, designed and built by the Gas Engine & Power Co., and Charles L. Seabury & Co., Con., at their works, Morris Heights on Harlem, was successfully launched Thursday, April 10th. She was most gracefully christened by Miss Elinor W. Betton, of New York City, as she started down the ways.

The Chanticleer will go into commission about the 15th or 20th of May, and will be in charge of Capt. E. Colbeth. The yacht is 118 feet overall in length, 79 feet water line, 22 feet beam, and 12 feet 6 inch draught, designed by Mr. C. L. Seabury. She is a modern type cruising schooner yacht, with long graceful overhang forward and aft. She was designed more especially for comfortable cruising than for racing. She has large roomy quarters for the owner's use, as well as pleasant and well ventilated quarters for the crew. Many features of interior arrangement were suggested by Mr. Weld, who is a veteran yachtsman, having belonged to the New York and Eastern Yacht Clubs for many years, and has owned many schooners and different types of yachts, previous to the Chanticleer.

The yacht is arranged with crew's quarters forward, as is usual with this type of vessel. Directly amidships is a large saloon used as a general dining room and social hall, fitted with all conveniences and equipments essential to comfort, including a large open fire place, which is always so cheerful and often necessary in early spring and late fall cruising. Next aft comes large and well ventilated staterooms for guests, equipped with dressers, wardrobes, etc. Then will be found a large double stateroom for the owner, extending full width of the ship, fully furnished and equipped with all the conveniences one might desire for a long and extended cruise.

In many of Mr. Weld's cruises to the West Indies and other distant parts, he found it very advantageous to have his captain and quartermaster quartered directly aft, close to the position where their services are mostly required, so that they may be quickly summoned to duty, and also where watches can be changed at night without disturbing the remainder of the crew. He therefore has these officers' quarters stationed aft, which seems a very good idea.

The yacht will be equipped with naphtha launch, cutter and life-boat fitted with sails and center board. Sails furnished by Wilson & Silsby.

The lead ballast will be placed inside of the deep keel, being specially cast in small pieces for the purpose, and not bolted on the outside as is customary with some of the late vessels. The idea of this arrangement is to allow of the ballast being taken out of the hull and the whole of the inside of the boat painted once a year to prevent corrosion.

Immediately after the launching the work of stepping the spars and completing the rigging was commenced.

The Chanticleer is one of the finest cruising schooner yachts designed and constructed by this company, and her career will be watched with interest; the main business of this company being the construction of steam launches and yachts, numbering 176, among which will be remembered the steam yacht Kanawha, which has carried the pennant ever since she was launched.

Among the large party who witnessed the event were Miss Elinor W. Betton, who christened the yacht, Mr. and Mrs. Mauran Betton, all of New York City; Mr. W. S. Youngman, of Boston, representing the owner who was unable to be present; Capt. E. Colbeth, master of the new boat; Capt. J. C. Silva, of the steam yacht Dreamer; Mr. M. K. Lorty, Mr. H. C. Hutchinson, Mr. Colcord and Mr. E. Gardner, all of Boston; Mr. and Mrs. Jno. J. Amory, Mrs. C. L. Seabury, Miss Dora Underhill, Miss Alice Edgar, Miss Marie Seabury, Miss Curran, Mrs. Entwistle, of New York; O. R. Ford, J. A. Haeseler, Henry Greenspecht, Mr. and Miss Ruth, Mr. and Mrs. L. H. Champlin, Mr. and Mrs. B. F. Smith, all of New York.

On Tuesday, April 8th, was launched from the yards of the Gas Engine & Power Co., and Charles L. Seabury

& Co., Con., the steam yacht Margaret, constructed for Mr. John H. Rutherford, a member of the New York Yacht Club. This boat is of the trunk cabin type, of steel construction, and has several interesting features connected with same. It being desired by Mr. Rutherford to have as large a yacht as possible for use at his summer residence at Lake Champlain, and the longest craft that can be passed through the Southern Canal connecting with the Hudson river and the lower end of the lake being only 98 feet, it was found necessary to construct the yacht in sections. The lines were therefore laid down for a 98 foot water line boat; the over all length being 117 feet on deck; the bow being constructed to take off as far aft as the forward end of the water line, and all of the after end or overhang of the yacht will be taken off to the after end of the water line. These ends will be placed on a scow and towed through the canal, and will be again attached to the hull at Whitehall at the lower end of the lake. All of the deck joiner work is constructed of teak throughout. Below decks, aft, large commodious quarters are arranged for the owner, consisting of a large bath room full width of the boat immediately aft of the engine compartment, thoroughly fitted up with modern plumbing. Directly aft of this comes the owner's double state room, connected by sliding door. These rooms are each fitted and furnished in the most modern style. Directly aft of the owner's rooms, is arranged a single stateroom on the starboard side; on the port side a wardrobe, guest's bath room, etc. The saloon, which is very large and commodious, has wide transoms on each side for sleeping on in case of large party making an extended cruise. The finish through the owner's quarters, staterooms and saloon is in mahogany. These quarters are very light and airy, and in many respects are much better than are found in a flush deck yacht of the same size. The crew's quarters are forward, and are large and roomy, staterooms arranged for captain and engineer.

On the forward deck is the dining, saloon and social hall finished throughout in mahogany. This house is also constructed differently than those of most vessels of this type; as it is put up in sections, arranged to be divided half way up the height of same, so the yacht can go under the bridges and through the canal, all the bridges being stationary and not admitting of the passage of a yacht of this size with the deck house all intact. This house can be easily reconstructed, requiring only about one-half day's labor.

The yacht is fitted with two "Seabury" triple-expansion engines and is twin screw, the draught being only four feet, on account of the shoal water in the canal. The engines will be supplied with steam by one "Seabury" water tube boiler of latest design. The yacht has a complete electric light plant, having 40 lights. A searchlight is mounted on the forward bridge. She is schooner rigged; all spars are stepped on deck, and arranged to be quickly shipped and unshipped.

The yacht slid gracefully down the ways, after being christened by Mrs. Charles L. Seabury, wife of the designer. The yacht was at once hauled in to the docks and work commenced for the preliminary trials to take place this week. While the weather was unpleasant, many people were present to watch the yacht glide into her native element. The yacht set beautifully on the water and is a credit to her builders. The Margaret is the third yacht of this name owned by Mr. Rutherford, and is the fifth one constructed by the old Seabury Company and the new consolidated company for Mr. Rutherford. The speed of this boat will be 17 miles, or about one mile faster than the old yacht. Mr. Rutherford is now in London, but will return to this country about the 23rd of this month, when he will at once put the yacht in commission. Capt. Chas. Holgren will be in command.

D Kahnweiler's Sons, 437 Pearl street, New York, are building two Tobin bronze life-boats for the Bigelow steam yacht Pantooset. The boats will be ready to ship to Boston in about three weeks. They will be elegantly finished in mahogany trimmings, etc.

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EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the Eastern freight market as follows:

The situation so far as grain chartering is concerned remains unchanged, and there seems little likelihood of further fixtures being made in this particular branch for some little time to come. Some business is being done in Deal chartering from Bay of Fundy and the St. Lawrence, but at rates favoring charterers. The shippers from Gulf ports have been enabled, owing to their getting tonnage at low figures, to put through an increased business compared with previous weeks. Timber charterers have no special requirements, and no important fixtures of this description have transpired during the present week. Coal shipments are restricted owing to a strike amongst the miners, and one steamer, previously chartered, we believe has been cancelled owing to the inability of charterers to supply the coal.

There continues a general lack of animation in the market for sail tonnage, and not the slightest change in rates has occurred.

Grain to Liverpool or Glasgow 3 cents. London 3½ cents, Bristol 5¼ cents.

ERIE CANAL DISCUSSION ABROAD.

At a meeting of the German River and Canal Society, held here to-day Prof. Bubendey, of the Technical High School of Berlin, said that he was inclined to agree with the American engineer, Major Symons, that the enlargement of the Erie canal, to permit of ocean going steamers to reach the Great Lakes, would be without practical advantage.

The speaker added that this subject would be discussed together with the growth of international congress on canal navigation, to be held at Dusseldorf.

Prof. Bubendey asserted that traffic on the Detroit river doubled every six years, and that in 1901 it aggregated 40,000,000, as against 8,500,000 tons through the Suez canal for the same time.

MARINE PATENTS.

696,972.—Submarine boat. John P. Holland, Newark, N. J.

696,982.—Tide-motor. Frank H. Lauten, Brooklyn, N. Y.

697,053.—Brake for propelling shafts. George Whittlesey, New London, Conn.

697,149.—Ship's anchor. Francis W. Kenney, Providence, R. I.

697,150.—Seine-pursing machine. William B. Lantz, Gloucester, Mass.

697,151.—Seine-pursing machine. William B. Lantz, Gloucester, Mass.

697,202.—Mechanism for transferring boats. Leon Donne, Chicago, Ill., assignor to Le Forest Ingersoll and Frederick Ingersoll, Pittsburgh, Pa.

697,215.—Dredging apparatus. Patrick E. Nolan, and Morten Mortenson, Superior, Wis., assignors of three-fifths to David E. Roberts, Taylor H. Wolford and Wm. H. Locke, Superior, Wis.

697,300.—Anchor. John C. Watson, Chester, Pa.

697,359.—Apparatus for launching life-boats from ships. Christian F. Petersen, Wilmington, Del.

697,362.—Life-preserver. Honore Prevost, Montreal, Canada, assignor to Henry Aylmer, Sherbrooke, Canada.

At the meeting of shareholders of the Cunard Steamship Line in London last Thursday, a shareholder declared that after years of mismanagement the public despaired of the company and another shareholder urged the directors to consider in view of the steamship amalgamations now occurring, and bid for the shares at par. Sir William Forwood, a director of the Cunard Steamship Co., declared the shares were worth much more than par and said that no other British steamship company stood in a sounder financial position. After much discussion a 4 per cent. dividend was declared.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS.—MICHIGAN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., April 9, 1902.

LAKE ST. CLAIR.—ST. CLAIR FLATS CANAL LOWER ENTRANCE EAST SIDE FLOAT LIGHT.—Notice is hereby given that, on or about April 15, 1902, a fixed white post-lantern light will be established in Lake St. Clair, 12 feet above the water, on the southeasterly edge of the lower end of the dredged channel leading into St. Clair Flats Canal, about $1\frac{1}{8}$ miles S.W. $\frac{7}{8}$ S. from St. Clair Flats Canal, lower light-house, and about 900 feet S. by E. $\frac{1}{8}$ E. from St. Clair Flats Canal, lower entrance, west side gas buoy, No. 21.

ST. CLAIR RIVER.—ST. CLAIR MIDDLE GROUND LOWER END FLOAT LIGHT.—Notice is hereby given that on March 27, 1902, a fixed white post-lantern light was established in the St. Clair river, 12 feet above the water, on a pyramidal framework surmounting a square wooden float, moored in 20 feet of water, at the southerly end of the middle ground off the City of St. Clair, in place of the former red and black horizontally striped spar buoy.

ST. CLAIR MIDDLE GROUND UPPER END FLOAT LIGHT.—Notice is hereby given that on March 27, 1902, a fixed white post-lantern light was established in the St. Clair river, 12 feet above the water, on a pyramidal framework surmounting a square wooden float, moored in 20 feet of water, at the northerly end of the middle ground off the City of St. Clair, Michigan, and opposite Mooretown, Canada.

STRAITS OF MACKINAC.—SOUTH GRAHAM SHOAL GAS AND BELL BUOY, No. 18.—Notice is hereby given that on the opening of navigation, 1902, a gas and bell buoy, painted red and marked "South Graham Shoal, No. 18," and showing a fixed white light during periods of 10 seconds separated by eclipses of 10 seconds' duration, will be established, and moored in 24 feet of water, in place of the former bell buoy, on the southeasterly edge of South Graham Shoal, about $1\frac{3}{4}$ miles southerly from Point St. Ignace, northerly side of the Straits of Mackinac, about $4\frac{3}{8}$ miles W. $\frac{3}{4}$ S. from Round Island light-house, and $2\frac{7}{8}$ miles N.N.E. $\frac{1}{4}$ E. from Old Mackinac Point light-house.

The bell is rung by the motion of the sea.

ST. MARY'S RIVER.—Notice is hereby given that on the opening of navigation, 1902, the following changes will be made in floating aids to navigation in this river:

Rains Island Float Light.—A fixed white post-lantern light will be established, 12 feet above the water, on a pyramidal framework surmounting a square wooden float, moored in 20 feet of water on the station formerly occupied by Rains Island gas buoy, No. 13, on the westerly side of the southerly end of the improved channel at Sailors Encampment and about 450 feet W.S.W., from Encampment Crib light.

Johnsons Point Float Light.—A fixed white post-lantern light will be established, 12 feet above the water, on a pyramidal framework surmounting a square wooden float, moored in 22 feet of water at the first turning point, on the westerly side of the improved channel at Sailors Encampment, and about 400 feet N. by E. $\frac{5}{8}$ E. from Johnsons Dock, on the station formerly occupied by Johnsons Point gas buoy, No. 19.

Rains Dock Gas Buoy, No. 18.—This gas-lighted buoy, formerly on the easterly side of the improved channel at Sailors Encampment, at the turn into Dark Hole Passage, has been discontinued, and its former station will be marked by a red 25-foot spar buoy, numbered 20.

Rains Island Shoal Float Light.—A fixed white post-lantern light will be established, 12 feet above the water, on a pyramidal framework surmounting a square wooden float, moored in 22 feet of water, on the station formerly occupied by Rains Island Shoal gas buoy, No. 21, at the second turning point on the southwesterly side of the channel at Sailors Encampment, about 1,400 feet N. $\frac{5}{8}$ W. from Johnsons dock and about 3-5 mile to northward of Encampment Crib light.

Coyle Point Gas Buoy, No. 4.—A gas buoy, painted red

and marked "Coyle Point, No. 4," and showing a fixed red light during periods of ten seconds separated by eclipses of ten seconds' duration, will be established in place of the former red spar buoy, in 19 feet of water, on the easterly side of the improved channel of the river off Coyle Point, Canada, at the turn from Dark Hole Passage into the southerly end of Little Mud Lake and about 1,800 feet (1-3 mile) N. $\frac{3}{8}$ E. from Dark Hole Range front light.

Cedar Point Gas Buoy, No. 5.—A gas buoy painted black and marked "Cedar Point, No. 5," and showing a fixed white light during periods of ten seconds separated by eclipses of ten seconds' duration, will be established in place of the former Round Island Point buoy, No. 5, a spar in 20 feet of water, on the southerly edge of the channel of the river, and about 2,800 feet (9-16 mile) northerly from Cedar Point.

Lower Buoy, No. 11.—A 25-foot spar buoy will be substituted for the former third class can.

Middle Gas Buoy, No. 13.—A gas buoy, painted black and marked "Middle, No. 13," and showing a fixed white light during periods of ten seconds separated by eclipses of ten seconds' duration, will be established in place of the former Middle buoy, No. 13, a spar, in 20 feet of water, on the northeasterly edge of the easterly end of Point Iroquois Shoal, southwesterly side of the main channel in the head of the river.

By authority of the Light-House Board.

N. H. FARQUHAR,
Rear-Admiral, U. S. Navy, Chairman.

The new steamer to be built for the daily service between Ottawa and Kingston through the Rideau lakes will be 112 ft. long, 28 ft. beam, draft 4.6 ft., triple-expansion engines, speed, 12 miles an hour. There will be sleeping accommodations for 75 guests and 52 seats in the dining room. The boat will have all modern improvements, and will cost about \$35,000. The New York Central is at the back of the company, which already has the Rideau King and Rideau Queen.

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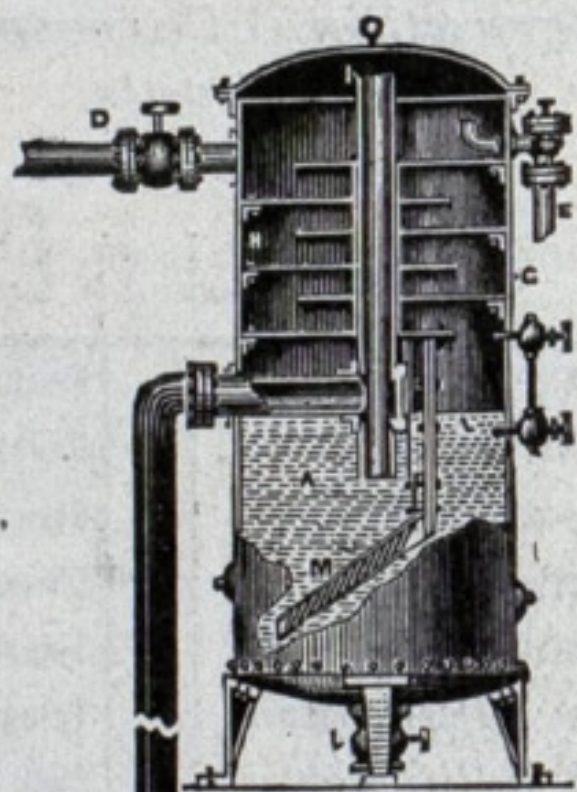
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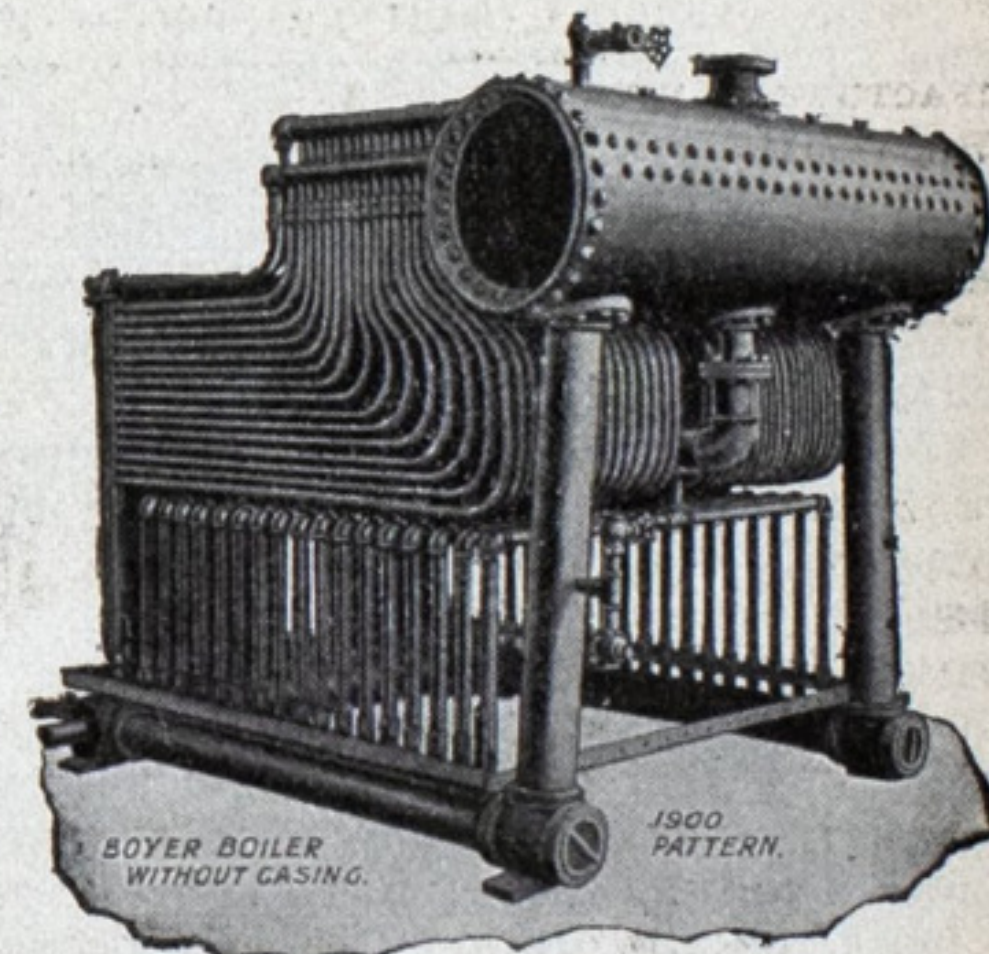
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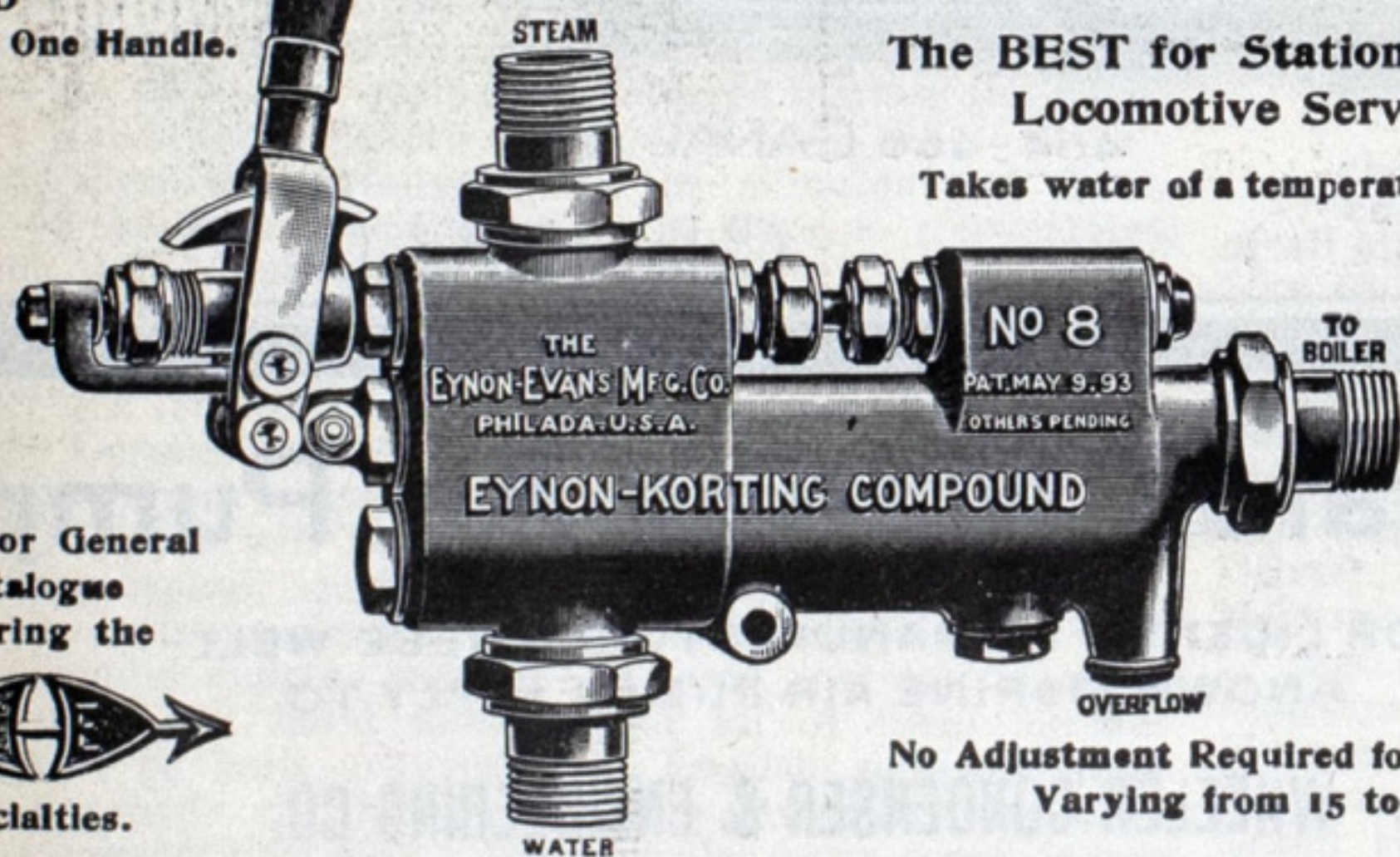
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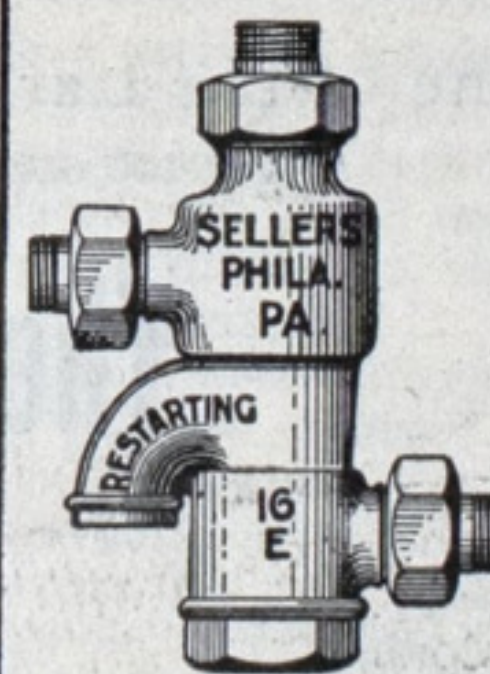
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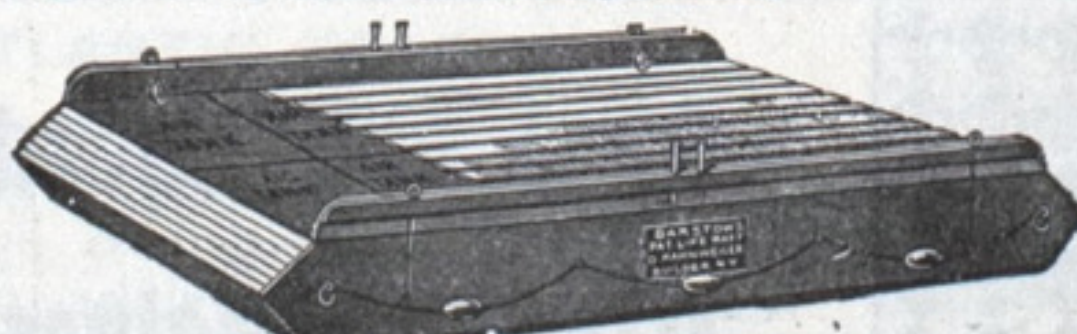
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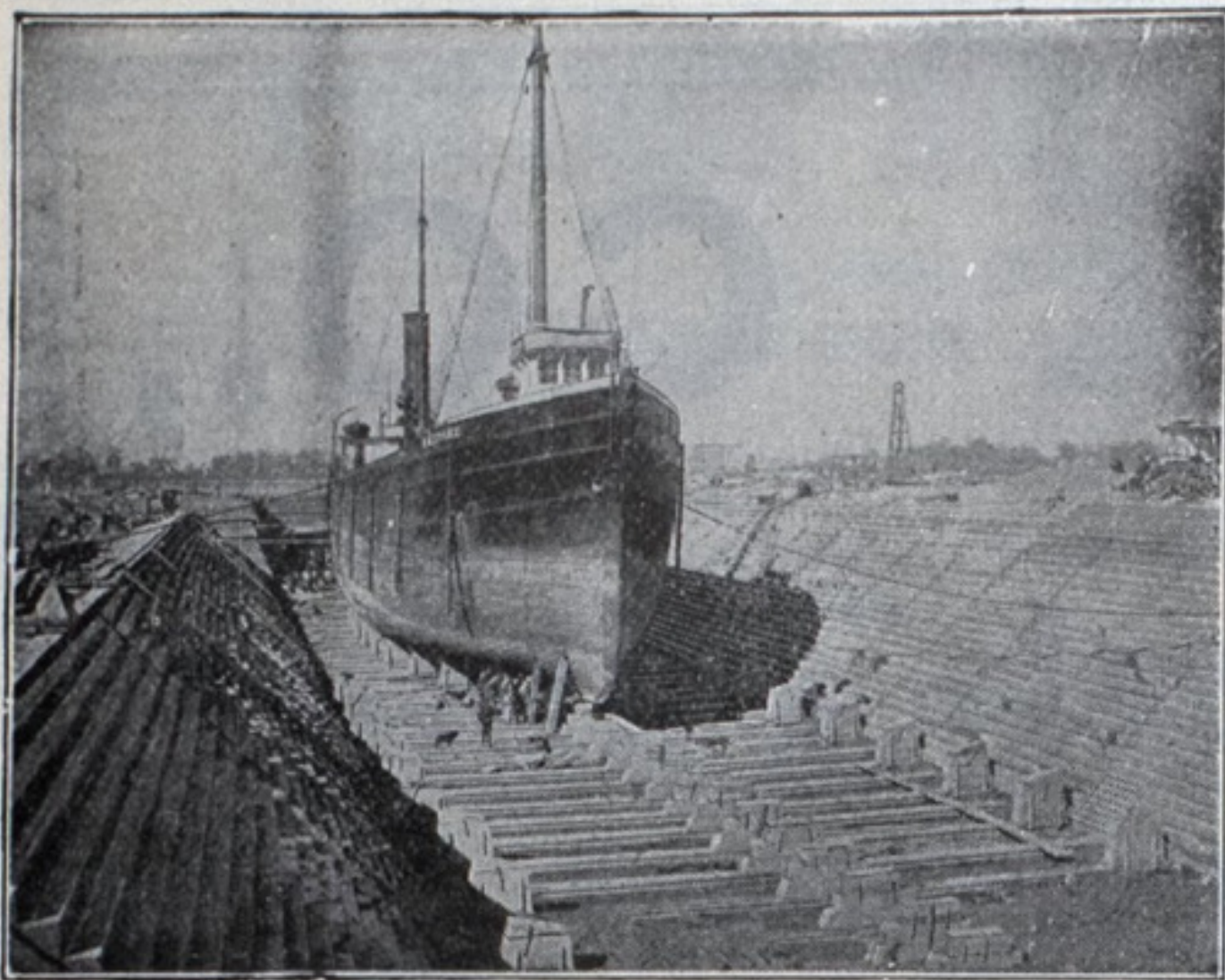


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